

# COMPUTER FLOORS Anti-status San tree-sequer and Gening there sold Gening there sold Gening there sold Gening there sold Gening there sequere sharined

Thursday, March 19, 1981



#### **NEWS BRIEF**

## Bid for ICL denied

RUMOURS from the city that Siemens of West Germany is making a bid to acquire all or part of ICL have been denied by ICL and by Siemens in Munich. The rumours are said to have been started by "stale hulls", disgruntled shareholders, who hought ICL stock is the hope that it would go up in

ICL has revealed that it is in close and regular contact with the government about its "longer term luture" adding that Information Technology Minister Kenneth Baker is closely involved in the

£18m contract GEC has won an £18 million

contract to manufacture British Telecom Monarch digital PABX's and has gained type approval for the SL-ILE, the largest of the SL-1 range of digital PABXs inade under licence from Northern Telecom of Canada. The company has now sold over 40 SL-1s to customers which include Esso and ICI and aims to export both systems in

## Redifon recruits

REDIFON is recruiting about 50 naff to back its activines in the riewelsta and office systems markers. The jobs include consultants systems analysta, design engineers, customer engineers and sales staff for the UK and overseas.

#### Many at show

DESPITE a £1 admission charge or the first time at last week's Microsystems exhibition and conference, attendance was at its highest level ever — 6,308 visiturs, 14% up on the 1980 show. One of the star attractions of the three-day exhibitun was Clive Sinclair's £70 personal computer, unveiled to the public for the first time.

HE THE STATE OF

# National strike called off by Health Service

NATIONWIDE strike schion ernment Officers (NALGO), estiwithin the National Health Service regional computer centres was avoided last week after the intervention of the government's Advisory, Concilistion and Arbitration Service, ACAS.

An agreement on an orderly return to work has led to most centrea working normally, though the Manchester-based North-West Regional centre was still disrupted esrlier this week.

The national diapute is over a union claim for between £500 and £1,000 per person for computer staff in the centres to bring their wages up to those claimed for similar jobs in private industry. The main union involved, the National Association of Local Govmates this would cost £1.2 million

A Department of Health and Social Scenrity spokesman said the management side had offered a iotal of £700,000, with distribution sull to be agreed. At present wage increases are restricted by government cash limits to 6%.

Last Priday Sir Sidney King, chairman of the management side of the administrative and lunctional committee, the aub-group of the Whitley Gouncil which deals with the wages of computer staff, met fellow functional committee chairmen in a bid to seek extra cash from their areas for the computer sector. The Whitley Council is the forum for management and

Lifting the action has meant that cheques totalling £15-20 million across the country have been released for payment. They had been processed by the computer centres but not despatched.

Trouble at the Manchester centre in Prestwich Hospital is continuing because, according to a Nalgo spokesman, the manage-ment side hed indicated it intends to stop superannuation and hollday entitlement covering the period of the strike. The initial action flared up at this centre after two senior managers "seized" cheques worth £9 million which had been processed but oot paid, during a union work-to-rule.

#### UK lets slip a promising product by Claire Gooding

THE Brhish micro program development and generating tool named The Last One hos been reused funding by Unilever Computer Services (UCSL) and now scems likely to be taken up in the

The system, from D.J "AI" Systems in Ilminater, Somerset, uses techniques based on artificial intelligence to generate programs, osking detailed questions to flesh out an outline which can be designed by a non-programmer at a level similar to flowcharting. Its claimed ability to relieve pro-

grammers of the drudgery of coding and allow them to generate programs from flowchart designs has brought an enthusiastic reception from parts of the software

But others say that a program designed to write programs is pitched at too low a level if it atill needs flowcharts (as The Last Onc does) and that, in any case, APL

Although it is built on a concept which is very much geared to the present market, UCSL, has decided that the business climate is against lovestment. Its present backer, Scotty Bambury of Euro-tyrea in Ilminster, has been

wanted to pur into the product, UCSL's Alan Jones told Computer Weckly. "The idea's interesting but it comes at the wrong time for us, and after discussion with our

and others we decided against lt.

seeking further funds to get the product compactedly roadworthy.
"The sort of money he's asking for Isn't the kind of morecy we associates, Timesharing Inc

However, UCSL has plana of its own to make a similar product available in the mainframe world,

author of the system, David James, was trying to do.
"He's taken a feasible approach

and it's n leap forward frum current generators. If it does all the things he claims it does then it's infront of its field.

The Last One has attracted much publicity, partly because of its name and the personal story behind its author, a former mil lionaire who lust his fortune because of his obsession with coinputing. But so far, firm interest in marketing it has come unly from

"We would have loved the interest to come from the UK," said David James, "but although lots of people came down to see the system and were over the moon about it, nothing happened. The substantial interest, 99.9% of

# Paoton, chairman of

# **Control** of ECS attempt

BERNARD PANTON, chairman

of Telecomputing, was in California early this week utempting to take a controlling interest in ECS Microsystems, his apponent in u continuing legal buttle. The Cali-fornia firm has been muking moves that could drastically dilute the shares Pantun wants to buy. ECS Microsystems failed in a

hid a few weeks ogo in freeze Telecomputing assets, its stated aim being til retrieve \$450,000 uwed by Telecumputing un hardware it supplied for the firm's FECS 4050 microcomputer.

Telecomputing is string ECS Microsystems in California for \$12 milliut, alleging that the kit was faulty and also charging ECS with hreaking Telecomputing's exclu-sive distributorship for ECS machines in Europe.

# for Ireland

US word processors are to be built in Ireland following the tekeour

Minnesola msnufacturen CPT

y Rory Johnston

of the minicomputer plant abadoned by Northern Telecom, & desire to serve better the booming Europeon market is given as the reason for the move by CPT pres den Dean Scheff, who predent turnover of \$100 million for 1981, up from \$60 million in 1980, 30% coming from overseas. The plant in Ballincollis

County Cork, used utill January to build Data 100 minis, will enploy 50 people initially, many of these from the laid-off Northea Telecom staff. The Irish Industria Development Authority en couraged CPT's takeover with to incentives, equipment grants and At the same time CPT has at

notinced upgrades to its to models of stand-slone work processor, consisting of expr memory and additional softmu facilities such as mathematic functions,. In addition to these higher-priced options s low-me printer will be offered later its The Cork plant will be CPT

first overseas, and one of the first for any uf the specialist US win processor manufacturers, CPT's especially strong in Europe b cause it has a marketing arrangement with CII-HB in France; different Isngusge versions.

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Connecting to Date! P

Thursday, March 26, 1981 Number 750

£200 million guarantee puts spotlight on board

# Top changes soon at ICL

CHANGES in top manageoicht at troubled ICL now look fairly certhin following the government's decision to keep the company's head shove water by gusraoteeing an extra £200 million worth of kans from ICL'a main bankers over the next two years. ICL has already takeo up most of its existing £70 million worth of bank loan

Commenting on the government's move, information Technology Minister Kenneth Baker hedged questions about the government's guarantee being conditional on management changes at ICL: He pointed out that the true of the guarantee were conflictuated. terms of the guarantee were confidental, but samitted that the ICL mtoagement was being

Announcing the government help in the Commons, Industry Secretary Sir Keitli Joseph Heck the government's position as a big

He commented, "To protect

ponse to a proposal that the gov-ernment should give a limited temporary measure of support for

He added, "Such a guarantee will not lead to any public expendi-ture unless it is called. I emphasiac that it will be a limited amount and for a limited time." Reactinn in the City to the gov-

ernment action was distinctly cool. ICL's share price fell to 38p from the 46p price when trading was suspended just before the an-nouncement. A spokesman for nouncement. A spokesman for Sperry Corp in New Yurk sald that he had "no knowledge" of a reparted 60p per share takeover bid by Sperry Uolvac before the government made its statement. Welcoming the loan arrange-ments, ICL said that its bonkers -

Midland, Barciays, National West-minster and Citibank - had agreed to increase their existing facilities to £270 million for up to two years. In its statement the company

idded that it was "unusually difficult to look ahead" but repeated his special interest we have, chairman Philip Chappell'a prediction at the ICL annual meeting

the current financial year would be less than the £20 million loss in the first quarter and that the company would break eveo in the second half of the year, But Chappell admitted that this improvement would depend on there being no further deterioration in demand.

In the discussions in the Commona that followed Sir Keith Joseph's statement, shadow Industry Secretary John Garrett welcomed the decision but said that limited temporary support was no substi-tute for a policy and a plan for Freech or Japanese had.

Referring to the present govern-ment's disposal of the National Enterprise Board's 25% holding in ICL fast year (which raised over £30 million at 120p a share), Gar-rett commcoted: "It is now clear that the sale of ICL ahares by the NEB on government Instructions was misguided, since ICL is now back in the situation where it is sultable for the NBB to take it over on the present government's crite-ria for a rescue by the NEB."

Moinframe handling of Eurobond deals at Chemical Bank's London base will be switched wholly to micros powerful multi-user scheme now being considered. **NEWS BRIEF DP** staff still on strike to micro dealing

at the North Western Regional Health Authority computer centre at Prestwich Hospital in Manches-ter this week, despite a return to work elsewhere io the country. About 50 of the 100 DP personne at the centre are still on strike after colleagues at the 14 other regional computer centres agreed to work

They are in dispute over a claim by computer staff for parity with

#### 64K RAMs sold have the Ombudsman Investigate

SALES of 64K dynamic RAMs are getting under way with ac order from Control Data for \$I million worth from Fujitsu and Motorola, The 50,000 units are to be supplied in two halves by the two

**Agreement** THE office division of Northern Telecom is increasing its presence in Europe through an OBM agree-ment with Redifor/CMC.

tainty studing users about IBM's plans were cleared up by the 3380

# CITY-BASED, international

ank is running its Eurobond trading operations on micron, under the multi-user Famos operating system, and intends to use them to replace its IBM main frame.

system gives information on yields, profits and losses. The deails of a deal are then transmitted via a time sharing network to the clearing office in Europe and other branches as far alleld as Hong

Kong.
After searching for a real time system to cope with front-office operations, Chemical Bank Inter-national plumped for the Famos-based system from Microtek lo Orplugton. With co-operation from the bank, Microtek produced the system to be up and running in six

"We find it excellent," said Bob Fuller, bead of the DP task force at Chemical Bank, "There's even a possibility it will be marketed outside as a Eurobond system. I believe it is the most advanced Eurobond, trading system currently available; it does everything we want it to and more,'

The back-office system will deal with the elearance and traosference of all monies traded during the day, and will link with the automatic clearing bank systems Euroclear and Cedel.

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# Maintenance battle

From front page

ischines, Computron Holland. or, Vim van der Beek, is hesitant out dealing with either.

Radius has spproached me but all they want to buy is spare parts nd that's not of interest to me,"

有一次的一个小型的数据,并未使用的数据**对的程序的数据的**。

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owned by former Computron em-

Machines for the msintenance agreement for the southern part of the country, an offer Haylock has turned down because, he says, it also involved a commitment to sell.

He added; "I've met Mr Gale but I have absolutely poudes about 1 have a wear.

Meanwhile Gale has entered a trade show, the Numerical Control Exhibition at Wembley on March 30, under the name of Computron Holland is supporting is the 50 per cered. The stand was booked which has a wine of the finance director of Officegars, Mr Byckley.

AWAILABLE 1.02April May

TELEPHONE: 01-491 4101 of 41-459 7955. TELEX: 8954/24

ployee Tony Haylock.

Gale has according to Haylock, approached him with an offer to franchise Computron Business

COMMA

Ompuler staff half cash aco moves into desk-top micros distillancies beat the slump Planent near on Suro viewdata standard .... 48

# Privacy law confusion involved for both the private and sue for breaches of privacy and

A MIXTURE of relief and bewilsmeat was the reaction of the computer industry to Home Secretary William Whitelaw's an-Muscement that the government ad accepted in principle the need at data protection legislation. His stiement however left many quesmon managered, such as how the proposed codes of practice and re-Mry would be policed, and when whitelest might be introduced.

Aseth Jones
A SERIOUS sharrage of largetele disc subsystems for capacity
saired IBM mainframes will be
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abusing of IBM's 1200 inegawise perhapindic disc drive, the
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No doubt wantrage to pre-empt
mapping out into the oben; by
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have to coter themselves, as well as

moud be no Data Protection law was specific that there lation required to satisfy the Coun-cli of Europe's conventioo. This would give individuals the right to

having to "comply with other requirements".

At the same time a working party of the Computing Services Association has recommended that an even simpler system of privacy protection for individuals be intro-duced, entailing the minimal legis-

IBM in the UK said that a new

But IBM gave no lides of the precise nature of the problems, ex-

cept that they concerned the 3380;

I about the de IBM admitted, "We have prob-

NSIDE THIS WEEK'S ISSUE

public sectors. There would be a

public register, he said, oo which

users of automatic systems would

A register would not be a good thing because of its cost and the danger of its belog used with criminal loteot, said committee member Magdalena Gardner-Brown of Comtact. Manual files would be included in the laws progressed by the DCA which is worse posed by the DCA, which is worried about other countries using data protection as a noo-tariff bar-Turn to back page

complaints against the public sec-

Lechnology snags delay IBM discs lodustry speculation centres on demand even further for its 3652 drive, a double density equivelent of the IBM 3350. Orders for the 3652 leapt last year after uncer-

delivery schedule would be an the technologically innovative parts of the 3380, in particular the flux year with the first shipments now probably taking place in the second quarter of 1982. They were originally intended to start in the 1981 third quarter.

1981 third quarter.

1981 third quarter. Initial 3380 shipments in the US were originally expected to slart about now, but have been delayed to the fourth quarter of this year.

announcement.

Mike Kitching, managing director of Memorex UK, described demand for the 3652 now as "fames do". At the same time he warned of a restuding six-month delay in 3652 shipments. Plug-compatible disc subsystems supplier Memorex is

Prestel conference ... Software File .... 

Jobs: Pages 26/47

# Bank switches

weeks, it says.

As deals are coofirmed, the

# **British Made Terminal** for Data Capture and Local Processing

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# Dictaphone challenges IBM and Xerox in UK office systems market

impact in the UK, since joining the ranks of firms battling for the office systems market, with the Isunch here of the Dual Display word processor, an op-market machine with several novel fea-

Paney Bowes is combining Dictaphone's marketing set-up with the eehnical capabilities of its other equisition, Artec, in an attempt to form an office systema force in the same league as Xerox and IBM.

The Dual Display, a demodel, has a full-page high-resolution screen that is espable of displaying instified text, a revolutionary feature. A single-line display is also incorporated in the separate keyboard, and on this all control codes are shown in order to keep the screen free of all information that will not actually appear

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**DP9000** 

DP9001 -

small, so a "zoom" function is provided to stretch them to twice the size vertically, Each character is depicted by a dot matrix of varying size according to the character's width, sa proportional spacing is available an the screen. Justification is done when the line is com-

Saftware for records processing and mathematical functions is available, and a form of user programming is provided to allow fretions to be stored and executed

There is an extra-cost option called "Cancurrent Processing" which enables editing, printing, and internal operations such as sorting all to be carried out at ance. Communications is another

DP9500

DP9501

single-screen unit costing £8,512 and a dual screen £10,144, but system to pravide mare input capacity at relatively low cosr. Up to faur screens and eight keyboards can be cluatered together. When a full page of test is displayed the characters are fairly

Dictaphone is not going the way of Wang and IBM with their low-cost machines in climinating most sopport. Training and software updates are included in Dictaphone's prices. An extra keyboard costs £1,300. Twin eight-inch floppy discs are used, providing 450 K-bytes an each.

Bill Cottle, American head of Dictaphane UK, said that handling so much of the input to word processing already, with 70 per cent of the centralised dictation market, gave the firm a major advantage getting into the complete office systems bosiness.

#### ICLs for Aussie

AN Australian engineering com-pany has ordered three of ICL's new 2955 machines in a deal worth and Son chase the 2955a to replace

Apple III

lookalike

launch

By Elleen Stainer

Prices are relatively high, with a



# Selling specialised systems

TWO products were launched last week from a small systems company which has been steadily gainng strength in the manufacturing and production field. CSD, whose Impeon and Fincan packages are already widely used, announced Subscript, a subscription acounting system for publishers and nail-order subscriptions, and

space allocations.
CSD sells specialised systems

Products such as Pinca, which costs from £15,000 to £18,000 are simed at specialised mini markets using Digital Equipment and Nix-

"What we're trying to do," said general manager Dick Drinkrow, "is to bring computerised produc-tion control within the rench of small companies who have never

# **NEWS BRIEF** BT buys £1m

HONEYWELL is to supply filmillion of Level 6 minicomposes systems to British Telecom for three separate stores, repair and furceasting services. To be equipped with the PTS 6 transaction processing system, they will be used for key them monitoring (KIM), for the administration of repair service control by control of the store of repair service controls by computer (ARSCC) and far the foreign ing uf ordering requirements and transmission expenditure for less

#### System X sample

MAGNETIC bubble memore vstem X the totally digital telehone exchange, have been sampled by Plessey after a mist redesign of the chips. The qual sense amplifier, SB9001, and the quad write driver SB9002, for by tewide magnetic bubble memory systems are to be used in 2566

#### Innsite order

THE hotel industry systems conpany, ADP Hotel Service, just in by ADP Network Service in far ita Innsite package. The or tomor is Commonwealth Halian luns of Canada which is equipping nine hotels in the UK with lauste systems based on the Rair Black Box microcomputer.

# DP exports lead to UK's trade recovery

By Elleen Stainer
THREE ex-employees of Commadore International have set up a new company in California to manofacture small business computers. The first product will be similar to the Apply 11t, the empany claims, and a prototype inscheduled for next month.

The company, called Sirlut Systems Technology, is headed by John Palvinen, a founder of MOS Technology which became the inbouse semiconductor operation for Commodore in 1976. Commodore in 1976.
Vice-presidents of the ventore will be Charles Peddle and

Christopher Fish who left Commoore at the end of har year. Funding to start up the com-psny in its 4,000 square foot leased

The Apple III has recently been the centre of criticism from some industry speculators. It has been

SHARPLY increased exports of chides digital, analogue, hybrid, computer equipment last year led to Britain's favoutable trade balance with Western Europe of £240 million last year. That is up from to also does not include electronic

Exports to Western Europe leapt from £654 million to £803 million while imports stagnated at £562 million for 1980 - just £2

million more than the year before.
As shown in the table the REC countries account for the lian's share of visible trade and showed icility came from the three executives. More is being sought for a anily area to fall among imports.

45,000 square foot manofacturing Bts "Other West Borope" — which means Norway and Spain also showed a steep rise as a market for British exports of electron-

Electronic computer equip-ment, as described in British Over-seas Trade Board statistics, in-

European Free Trode Areo (EPTA) cumtries are Partugal, Austria, Switzerland, Sweden and

Commenting on Britoin's visib Sir Derek Ezra, chairman of t tee said: "For the first time in decade, our overall visible tra with Western Europe was in st plos by over £500 million in 198 Compared with a deficit of nea 14 billion in 1979 this was a sign cant improvement . . . represen ing an increase in exports of about 19 per cent. Imports by value re-mained at almost the same level as

1980 in electronic computer and ment showed a marked improved

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# Cash stopped as computer staff disrupt Inland Revenue and high street banks - report from Nicholas Enticknap Bank employees fight Honeywell tax department attempt

to thwart internal strike

THE Inland Revenue's attempt to the line of the banked, with a consequent loss to the Inland Revenue of the interest on an averdustrial action at its two cheque processing centres at Shipley in West Yorkshire and Cumbernauld in Glasgow has mer with resistance

rom backemployees.
The Council of Civil Service minos has obtained the assistance o week where the revenue would of the Banking Insurance and Finince Union (BIFU), which has ction to black transfers and debits Revenue retaliated by notifying employers that they had the alterto the relevant account numbers".

The issue arose when the CCSU. spart of its programme of indust-

native of paying via the Post Office is action in pursuit of a 15% pay ar National Giro. daim, instructed members at the In normal circumstances comtex centres to come out on indefipanies despatch cheques direct to nite strike. This meant that che-

up the other options last week. age £600 million a week for the BIFU has now stepped in and duration of the strike and a squeeze on the government's cash The strike was timed to begin in be much grenter than the average numbers. Union officials confirmed that some such cheques pay their tax bill moothly 19th of the month. The Inland

were in fact stapped last week.
This action by BIFU should increase the cash squeeze on the government, and so bring a settlement of the civil service unions' dispute, now in its third week. Other conputer installations affected by the action include the VAT centre at

Sir Geoffrey Howe, the Chancellor of the Exchequer, said in Par-liament this week that a substantial



Civil service pickers outside the Inland Revenue's offices in Bush House, The Strand, London last week ottempting to prevent tox cheques being delivered there.

# One-day stoppages at Lloyds and Barclays

Bank employees this week his Lloyds IBAI 3033 and 370:168 machines at the

that Bank computer centres were seems unlikely that that will hap-phaning 24-hour strikes this week pen, and preparation for further

The staff are members of the Banking Insurance and Finance Usion (BIFU), which last Thorselay relected the 10% of the staff are members of the Banking Insurance and Finance Usion (BIFU), which last Thorselay telected the 10% of the staff are staff as of the staff are members of the s day rejected the 10% rise offer made by the clearing banks. The taken has ariginally asked for 10%, and said it would not accept this than 13% or 14%. Action centred ao clerical staff

ading cheque sorters, but they SIFU also announced last week that its members would be apporting the civil service unions'

adustrial action by refusing to bandle payments to the inland kerie and Customs and Excise process between them about 16 million transactions a day. ions staff (see stary above). The stappage at the banks' com
Juint chief general manager of the

Rese centres was designed to have

Midlands Bank, Stuart Graham,

minimal effect on the general who is also chairman of the chief

Bahlic but all the Committee of public, but will nonetheless have executive uf the Committee of ben noticeable. The strike at the London Clearing Bankers, said: de centre, which started at not manday, put some online point cash dispensers out of on, while at both banks the

startees, we regard our offer as more than reasunable. Our own domestic profits are now on a clear g of debits and credits downward trend . . . If we were to pay any more to our staff, we would inevitably have to pass the the last similar strike by costs on to our customers, many ut

charting of work, and on having to make far lower awards to Dutch Gas chooses Logica

The computer centres involved are the Lluyds Bank installation at

Blackfriars in London, where

there are more than 2,000 staff in

all; 1,000 of whom are BIFU mem-

bers; and two Barclays Bank

Wythenshawe, which have 280 staff, of whom 200 helong to the

union, and which are due to be un

strike for 24 hours from 4 pm to

in a statement last week the

the Netherlands, and to West Ger-many, Belgium, France and Italy, for the gas company Nederlands:

MTORING of the Nether the Nether pathral gas pipeline notwork to wilched to a Logica de for the gaster about 1 million, lust Due to the pilot Renelux).

Lead in the contract of the pilot of the gaster of the pilot of the gaster of the pilot of the pilo Due to go live in 1982 the system being built in Retterdam's designed to collect and process 6,000 analogue values and 18,000 data points. Operators will man-for and control the pipeline net-work on 12 high resolution culour

# Intelligent network COOK - OF SERVICE HEADER processors by Codex. It pays to

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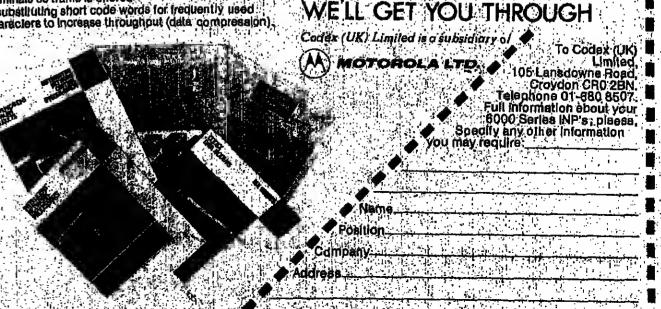
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The impetus would come from the attractiveness of IBM's application software, the elegance of its and the fact that users were offered a complete system, tailored to their industries — for example banking, sirlines, insurance and supermar-

Users had huge investments in getting applications working that they wanted to protect, said Kar. They would be offered a smooth Inigration path to SNA over the next four years or so, but support Telecom Systems Corp were all have to," Knr concluded.

UNCERTAINTY is clouding the

future of all information policy and regulation in the US, following the

arrival of Ronald Reagan and lus

administration's preoccupatiun

with cutting public spending. No replacement has yet been found for

Jenry Geller, head of the National

l'elecommunications and Informa-

tion Agency, and Geller's ambi-

tious plans fur a national informo-tion policy look likely to be

There is even a possibility that the NTIA could be converted from

by Donald Kennett for simple start-stop and bisynch-developing products to work with IIIM users will have to adopt ronous terminals would be SNA, just as plug-compatible IBM's Systems Network Architec-dropped from future releases of manufacturers had learned in the system suftware such as VIAM. which enables terminals to access application programs running in a mainframe, and the NCI' network control program which runs in tions controllers.

SNA-compatible terminols or cluster controllers would then be required in order to work with the

Most medium to large manufacturers of computer and terminal equipment were now putting some effort into emulating an IBM cluster control product, such as the 3274, and by 1984 he expected many manufacturers to be offering such emulations on the market. Telex, Nixdorf and Harris had announced SNA-compatible cluster controllers in the last year.

Univac, Honeywell, AT&T,

was innved by President Carter; or

it could be abolished altogether.

Meanwhile its Bills on privacy

and telecommunications have been

dropped, and such issues as

whether AT&T should be

prevented from offering data

the banking giant Citicorp and ADAPSO, the computing services

association, is proceeding slowly,

with a federal court and the

Controller of the Currency waiting

for the outcome of hearings before

the Federal Reserve Bnard in May.

The multi-front fight between

processing remain unresolved.

past to design for compatibility with IBM systems.

Even an occasional need to link ta an SNA system was enough to justify developing SNA-compatiple products - for example, if a chain of hotels using Univac's Distributed Communications Architecture wanted to receive bookings from an airline's SNAbased reservations system.

By the late 1980s we would se products on the market that fitted in with the ISO structure for open systems interconnection, but in the meantime software products from independent companies would have small numbers of users compared with IBM products.

"IBM is saying loud and clear that you will only be safe with SNA if you use IBM products

US information policy doubts

The Displayphune allows the user to make calls on two separate Counter-charges by Citicorp, that ADAPSO was trying to restrain trade by a "sham anti-trust action", were thrown out by the federal judge. ADAPSO has recommended modern coupler.

noghue uf Control Data, be made head of the NTIA, to give the agency "a practical understanding of industry," in the words of the president, Jerry Dreyer. Disby Elleen Stalner MULTIPLEXER for panding the NTIA would he "a

terrible mistake," Dreyer said. Meanwhile the 325 civil servants being part of the Department of ADAUSID is accusing Citicorp of there have little to do, apart from the White House, from where it is a competing unlivity in providing advising on curbacks to the funding the White House, from where it is a competing unliving in providing advising on curbacks to the funding of public television.

the White House that Hugh Do-

# Voice/datacom trial

BELL CANADA has intruduced o One is directly in front of the desk-top unit that handles both display screen, and the other is voice and data communications. The Displayphone, as it is known, will be tested at about 250 North American business sites later this

The basic unit consists of a seven-inch black-and-white lisplay, a telephone handset and

Bell Canada officials say that, given favourable reactions from the field trials, it may begin selling the unit during 1982.

lines. Both lines can handle voice communications, while only the second can handle data conunitnications, via a huilt-in 300 bps

ether from two in 64 systems into

me multi-user multi-function

Linking up 64 micros

Catted Constellation, the multiplexer allows each microcomputer to access disc storage as if it were the only one connected, ever if all the micros are in use. Maximunt storage with a fully lupleremed network is between 10 and

concealed on a slide-out drawer.

The Displayphone has 8K-hytes

2K-bytes of read-only inemory.

The RAM stores information en-

tered by the user, including up to 81 telephone numbers. The unit

also contains its nwn battery, so

that memory is retained during

number re-dial, a calculator fine-

tion, clock and calendar display,

and call timing. The Displayphone

can also accept periphends, such as

Extras include unto dialling, last

random occess menury and

used for data entry.

power fullures.

Constellation can be used with nost intercentinguiters available of ie commercial nurket.

Prices for the multiplexer begin \$750 with an eight-computer network and each interface after

#### Pets rule Digico moves into the desk-top micro market pany, Spanverne Investments (see Company News, page 11). by Kelth Janes BUOYANT UK nunicomputer manufacturer Digico has moved

into the desk-top microcomputer market with Prince, a Zilng Z80-

based single screen machine run-aing under the uniquitous CP/M

(1,500 and £4,500, It can operate

in standalone mode or os an intelli-

puter, taking advantage of its large

ale database. The Prince launch is one of

ee major current events in the

fife of Digico. The other two are

the opening of a new 42,000 square feet Northern headquarters in

share placing by its halding com-

gent satellite to a Digico minicom-

ting system. Priced hetween

Mensurement and Inspecial Technology Exhibition in Inga RI, field recently at the Nation Exhibition Centre, near Bimis

Two of the systems on the were based on Pets that had be repackaged, with Commiders blessing, to avoid looking like computer system in so effort

The first system was a subsid measuring unit made by Machine of Kenilwarth. It cost £6,500 for ardware and £500 for soften which could be tailored to ca-

The Machsize system had a mi time printer, 32 channels, ma-The first has a standard 12-key telephnne pad, eight function keys and five programmable keys. The slide-out 55-luttum keyboard is mand keys, custom design a-terfaces and built-in autions a ligital converters.

Vernon Instrument has jest aged a Pet inta a gauging system that could measure up to 20 & mensions on a work plece. The suftware was programmed in Bak and had three tests for the pine pass, fail or rework.

The keyboard could be detailed and a graphics printer was spinned, the repackaged Pri come about £10,500.

A menu-driven Pet-based of bration system from the Naise Physical laboratory gauge wit pieces up to one millionib a u inclt, with software running a cither mugnetic tape carridge a disc. It costs about £1,000 for the

hardware and £250 for salimure.
Unit Inspection offered a fraction service for tube inspector. tinne on the client's premies. Ik vaing eddy currents.

Advanced Metrology System exhibited a precision measure system based on a Pet check finicissions down to one military

ey become available. The l'et interfaced to a surface mingham, Liverpool, Newcastle tienstiring instrument via s gra-Glasgaw are now using Perkin-Elmer message switching systems, which were originally invaled as an interim measure while the now defunct Capital ing interface, the system come between £600 and £3,000 Systems based on Compact in sixiates, Data General and He lett-Packard kit were also a bited. mainframe system was being de-

immediately un a terminal, with codes indicating where else in the HIGH STREET Jubcentres are

Spanverne managing director Ken Atkinson, said the money

would be used for acquisitions

with peripheral manufacturers and

Prince slots into the Digico pro-

duct line between the Regent

VDU and the Consort, the smal-

lest of the company's 16-bit

microcomputer dealers were al-

ready interested in handling it, and

pointed out that the complete Prince package included Cobol, Basic, PL/I. Pascal and database

software on the systems side plus a

full range of applications packages for both general accounting and

Aikinsun said that several

service bureaux of most interest.

pseding the task of mulching up-picants with the right vacancies by ming a message switching system In the relevant local Jubcentres, which might be anywhere else in the UK, the details are printed to spread the word about jubs as directly on to a card which is ther pinned on the board for jub

"It brings more vacancies tu the net can be cast wider in the search," explained Andrew Hemmings of the Em-ployment Service Division of the Manpower Services Commissio which the details, which are entered ployer and job secker."

## Instant Arabic from CPT

Spreading the work

Pr has sold Arabic translation on than Arabic

y Claire Gaoding

Mendant printers plus multi-ling as fitst stage towards establishing a software in 10 languages other worldwide network.

word processing system tu Screen editing will be done by immigation processing system tu Screen editing will be done by immigation the translation market.

An £80,000 order has been paced for 17 word processors and stendant printers of the model to transmit copy to office in Hong Kong and Houston and stendant printers of the model to transmit copy to office in Hong Kong and Houston and H

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P&O Computer Services Limited

# Bureau buys Rair time sharing

COMPUTER bureau Allen Comouter Services of London has acquired the time sharing business of Rair, developer of the Black vice for a rented TV, according to Box range of microcomputers. The move comes after a high Atkinson. If a Prince machine goes growth in sales of the Black Box or Rair and allows the company Arkinson emphasises the importance of Prince as a satellite to a the new growth area of terminal bigger Digico system. He said that

Dealers are being appointed countryside by Rair 10 handle end that enabled the CP/M file handler on Prince to communicate with the user marketing of the Black Box series, including the lotest Black file handler on the Digico M28 system. He envisaged a network of Princes linked to an M28 and run-Box III line, Dealers will be able ning most of the user's applicato offer customers facilities like the Rair Rental Scheme. This tions programs while the M28 acted as a large scale database scheme provides rental contract

To maintain the machines Di-gico is offering a facility called

Minimum Interruption Plan which

will operate somewhat like the ser-

down it will be replaced.

**ASSET** will keep

hy Eileen Stainer IXED asset accounting is the theme of a new software package for the IBM System/34 user, available from Interactive Database systems based in London. Called ASSET/34, the program

completely supports all require-ments of SSAP12 for historic cost accounting and SSAP16 for curent cost accounting. The system comprises a vehicle letail file which gives out reminders of taxing, plating, Mol' testing and the like and produces a full

range of unalysis reports. It also includes a property register which gives printed information on rent review, insurance and

accounting assets all financed items with agreement details and standing orde

COMPUTER WEEKLY, March 26, 1981

watch on cost

ASSET: 34 is being installed curently in nine organisations, one with 20,000 assets to control and the company expects to release a version for the System/38 shortly. Similar to IDS's market leader

finaucial planning and general ledger system package called IN-SIGHT, the ASSET package has 'prompt' displays and dispenses with the need for the user to have omputing knowledge. ASSET/34 interfaces with IN-

SIGHT to provide a totally integrated management information

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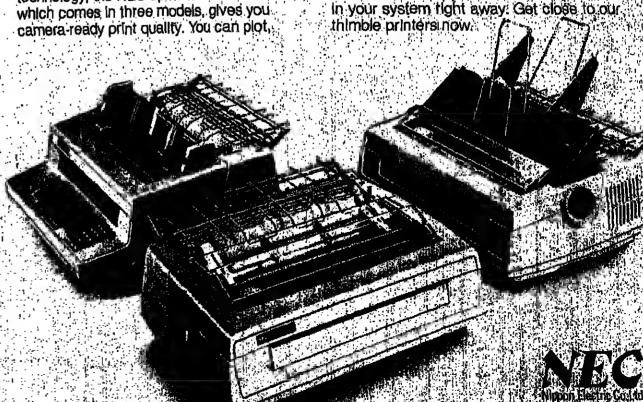
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special 24~page supplement

# IBM has boosted RDBMS with its query language. Software File looks at a system that uses it, and at others by Claire Gooding

structure, the links between in-

"It's very good, very efficient,

but it hasn't the facilities of Info.

generation and programming aids.

runs on IBM and Digital Equip-

ment kit," he continued.

ing some of the data," explains the Oracle manual.

Hierarchical and network data-hases (which were the norm hefore other database we've looked at," the dramatic fall in the price of linrdware) become increasingly linrdware) become increasingly complex as the database grows. In handles the Info system in the UK, Info's RELATE verb gives it rela-

Oracle consists of three major

Sequel 2 is billed as "a natural English-like language" which It is also multi-threaded. supporting multiple concurrent batch and noline apdates and queries. The Kernel overlaps I/O operations up to the limits of the hardware configuration.

relational method of storing data.
Using the technique of "norma-

SELECT ENAME, LOC FROM EMP, DEPT WHERE EMP. DEPTNO=DEPT. DEPTNO;

slows the data in the EMP table of employees to be related or loised to the data in the DEPT department table. Eighel. Example of Sequel 2 query language, or SQL/DS as IBM calls it.

Thise bandwagon has been all tag to product which don't really welcomed by the consider which make their living use "relational techniques", or paid the more with the have anticl-

Without entering into techni

mothed up several significant sales. IDMS database.

Min British universities. Into is also saining ground, with a major she includes nine at the Thames pointed by an ority and three at the requirements of giving ported by a non-procedural language. Although a aignificant procedure. It is not thought to be a

applies to the DOS/VSE market using DL/I databases, and It will rive be available until February 1982. But its amountement now puts relational databases fromly within 18M's strategy, despite predictions from 18M autoput that there will not be a true relational breakthy with for larges users. nal breakthrough for larger user

AIMING at the husinessman as eventual end user, P&O Computer the relational lag. Services chose to offer the Info "We've had a good look at Ora-

said Larry Kurtz of Dorie, who a hierarchical database, where the tional facilities, although its data will be giving a more versattle ser-vice," explained Alan Brown of Since its release P&O's marketing department. The decision to offer Info as part

of P&O's time sharing service on ing such as screen handling, report followed the use of the database for and it's a limitation that it only complex personnel system to keep track of staff at sea.

"I believe that those other facili-Now P&O is hoping to ottract existing users of the IBM AS, ties are being written into Oraclenow, but in view of the prohibitive which until now has had little comcost of Oracle, I'm not worried petition as a desktop high-levelabout the competition yet. They'r charging \$48,000 for VAX and \$96,000 for IBM implementation managers. Although highly thought of, the system is expensive as agaiost an Info licence for \$12,000 - and we can offer VSAM as well." to use, and P&O is hoping that potential AS users in an expanding market will plump for a cheaper

Info is a database and applicadatabase system (billed as relatioual by its originator, Henco) in a external files and link fields in files bid to undercut other bureaux to provide permanent or tempooffering a development service rary "views" of data in the relatiosuch as IBM's Application System. nal manner. One-off reports as "It's not just a matter of heing well as more Insting applications 30% cheaper, it's that we hope we can be developed using Info's

Since its release in the UK last year, info has been running on a wide variety of equipment includ-ing Prime, but P&O is the first to its remote terminal aystem, Ports, offer Info as an IBM mainfrance buresu service. It is being linked in-house development, including a with the EPS evaluation and planning system as part of P&O's

The idea is that using a terminal in his own office, with a telephone link to the P&O 370/148 and 4341 mainfraines at Rickmansworth, a businessman could access, query, update and maintain records on his own files. The system and its lan-guage are not difficult to learn and it is enviaaged that in some companies, as with IBM's AS, the vide a company's sole means of

from Call/VSPC, under which AS runs, has proved to be a straightforward operation. It looks inlikely that IBM will release the AS service from its present hureau basis and on those grounds P&() is hoping to attract another sort of customer; the sort who was hoping to run AS in-house eventually, and who now will be prepared to test our Info on a bureau with a view to buying the system for implementation on his own computer.

"IBM has already proved that there's a ready market so in effect AS has given us a captive audience, said Brown.

P&O's personnel departmen nioneered the conversion from AS to Info with its Bulk Shipping Fleet Personnel system. The system can now be accessed by non-computer personnel staff who use it to keep track of leave due to those at sea, and allocate them to



whereas in a relational set-up, the

relies on the repetition of data

tems in various tables rather than

According to Relational Soft-

ware, this means better perform-

ance, because the data items can be

changed or enlarged, even added

space, optimising I/O activity buf-

At the mument Oracle runs or

IBM and Digital Equipment CPUs; PDP-11/23 upwards and all

VAX machines; and IBM 360/370,

The operating systems suppor

ing Ornele are RSX-11M, IAS, Unix, VAX/VMS and VAX/Unix

303X and 4300.

structure remains simple because

al sppreach to database management with the annonocement of SOL/DS has meant a hoost for hose who have been using relatioal techniques for some time, and for one relational database in parti-

> Oracle claims to be unique in data is organised in a tree structures are not "normalised" in many respects, and truly relational in design. It uses IBM's necess language SQL/DS with the friendlier tersecting sets of records multipy and make the structure inflexible, name of Sequel 2 as its main query

SOFTWARE FILE

Its developers, Relational Soft-ware inc of Menlo Park, California describe it as the only high performance relational database management system svailable at the from the US Navy DBMS tradeoff study as "an effective tool for gen-

to, without any reorganisation of existing data or programs. Oracle's components. The data dictionary. Kernel compressea data items, hich is described as being compaantoinstically allocates and re-uses rable with Cullinane's Integrated Data Dictionary, centrally defines all (ables and data items.

handles queries, data definition and manipulation, allowing nonprogramming personnel to retrieve formation. A typical query shown in Figure 1.

The third element is the Kernel of Oracle, the nucleus which deals with the physical arrangement of items and actually implements the

on," data structures are simplified into two-dimensional

plified into two-dimensional un Digital Equipment machines tables. "Any structure, no matter how complex, can be reduced to OS/VS1, OS/MET, DOS/VS

is query acleeta data from more than one table to list the names of all employees and the locations of their departments. The WHERE clause identifies the common data item (DEPTNO) that

# Now everyone is getting in on the act

plied the move with ita Datacom

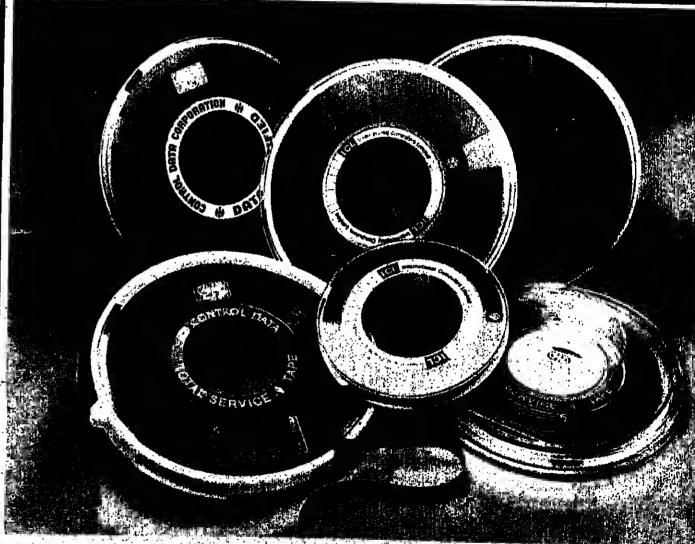
noduct line. In fact, everyone is anxious to be a on the act, and although IBM's sent relational database System R. lef which SQL/DS is the foreer) shows no sign of imminent ders already in the market.

demonstriction of move the development of BM's race of Direction and has of a great deat of mount of a great deat of a great dea

calities, the end user expects a rela tional database to provide easy maintenance and expansion, and most of all an interactive query language which will be able to link data items to allow complex que-ries, rather in the way that Culli-nane's OLQ (Online Query Lan-guage) gives a relational-like

product, it is not thought to be a likely money spinner at the monthly licensing fee of \$500, unsoftware inc. Computer Resident 3000 for the Hew two full megabytes to runder from Relational. At the moment, SQL/DS only.

from Relational Data applies to the DOS/VSE market be their many after thought.



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CONTROL CONTROL DATA

#### for viewdata gateways tavourite application proposed for gateways from public viewdata services to third party databases, although they can also allow access twother services which it would be uneconomic to provide on Prestel's

At last week's conference on Prestel's Gareway organised by Systems Designers and British Telecom, Simon Wilders, the software engineer responsible fur implementing Gateway, spoke of the "mansformation" of Prestel from an information retrieval service to n data collection service.

And Ludwig Griebl of the Deutsche Bundespost, which initiated the provision of gateways on public viewdata, said that 80% of the frames on the third party computers connected to the Bildschirmtext viewdata service were designed for data collection.

manager Alan Haimes said the economic justification was often stringer for data collection than it

was for data distribution. being available to their informa-

pressed by minor improvements in display quality made in some other countries, but had been impressed by Bildschirmtext's gateway. Apdication areas would include ighly interactive services, rapidly changing information, capture and verting of data in volume, extrework was in place to give local cull access from most of the country. He outlined plans for its intro-

duction. By the end of the year, tests would be can with the first guinea-pig (or pioneer) gateway in-information providers. Their ser-vices would be available by next March. They would be attached via the PSS packet network to a Prestel centre having a light load

SDL's information systems-

Prestel research chief Kelth Clarke said that the bulk of inter-national debate had centred on display techniques and the terminal transmission scheme, on whether character sttributes should be coded serially or in parallel, but that was not where the main problem lay. They lay in the computer network and the datubase structure, because people were going to make their money through quick and efficient access

British Telecom hall been unim-Kornelia Rübcke of Verbraucher-bank used her own bank account to demonstrate facilities offered by the bank to customers with viewdata terminuls. She has also allowed SDL access to it in the past - it is so much more authentic than a dummy ac-count - and David Gilbert said he mely large databases and to cases had once cancelled her standing order where there were complex security to the gas company during a demou-

middle of next year, gateways would spread through the country along with Prestel's new advanced network, Panda. The chief merit of the current network was that it had been set up quickly. Pandn would make it easier to introduce new facilities, such as Gateway and

to he reduced by getting away from the present labour-intensive archiving methods and it would make it easier to take ad vantage o new technologies, such as packet switching, video-dise data archiving and Cambridge Rings or other

These were useful for connecting a number of computers together in a flexible way.

Third party dntabase operators would have to implement X25, so as to attach to PSS, and the BT protocol designed for the German system, which was equivalent to the top four loyers of the ISO open Room for more next month

ride the required user interface. SDL's David Gilbert said that the BT protorol had been designed in modules related to the ISO networking scheme, so that as standards emerged for each layer the modules could easily be changed to comply with their

Some parts of the protocol might be extended in future to cater for a wider variety of application requirements, including for example a computer-initiated din-

SDL's Haimes said eumpanica were likely to take at least six months to implement a service on Prestel's Gateway, even with the availability of software products to handle the X25 and BT protocols.

SDL planned in huld workshops un third party database operation at its Camberley headquarters. One-day planning workshops costing £150 a head were scheduled to start next inouth and two-day design workshops, custing £350, in May.

on West German viewdata

number of West German companies will he able to offer viewdata services on Bildschirmtext, when connections from private computers to Bildschirmtext gateway centres start being implemented via Datex-P, the West German public packet network, instead of via leased lines.

Ludwig Grichl from Deutache Bundespost said that the full pub-lic service of Bildschirmtext would not start until 1983 and it would be different in minay ways from the current version. The next generation of character-ending methods was still being discussed and some of the higher level protocols for of the ligher level producetion open aystems interconnection would probably be defined by

Innlementation of the public service would he put out to Inter-

LEAR SIEGLER ADM-31

LEAR SIEGLER ADM-42

Despite the wait and the changes, it was still worthwhile for a company to set up a service, Griehl thought, as they would gain experience of designing and operating a system and would not inve to change the applications hemselves for the full public ser-

Packages were already available from IBM, Philips and Siemens, he said, to handle the communications side, implementing the BT protocol with the X25 or the IBM 3270 line protucul. Grichl's paper listed seven

banks which offered or planned services, three having annumeed their plans in the last month. A total of 27 organisations would be linked to the gateways by the autumn, about half each using X25

to affer correspondence com

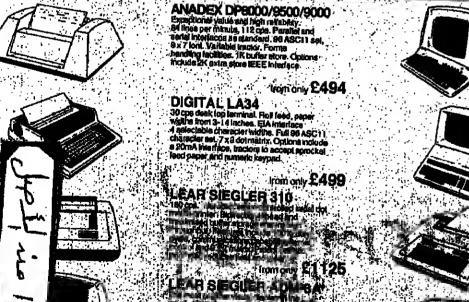
Peter Kölin, data process manager of Verbraucherback, his bank would extend suppor Bildschirmtext-based services nll towns in Germany with popu tions over 200,000 and would a extra facilitica such as home-bee truding in stocks and shares.

The hank, he said, alread allows its 40,000 customent control their accounts via Ditage Alfaskop terminals in all branches, which are accessible to and night in booths openal

magnetic card keys. A ward of statistics provided the bank showed that in IA customers able in control derx counts via Bildschirment accessed the system between 13 and 260 times a day.

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Harmeste 50 i 263/4.

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hurpal form and

by Eileen Stainer

# To solve the problems of the book industry

software house Systemsolve, and its client Thomson Books Ltd. The Booksolve system, which is already installed on an ICL 2905 in

TBL's distribution centre at Camberley, Surrey, copes with all ospects of the business including specialised areas such as royaltics to authors, a feature which is still

TBL first opproached System-solve with the Idea about three years ago, and has spent £250,000 developing the system. So that other publishers can use Booksolve, Systemsolve has developed the system in nine main applica-tion modules, which can be configared according to need.

The system has been written with the entire ICL range in mind, and runs on ME29, 2904, 2905, 2946, 2956 under DME2, as well as on the recently announced 2966. Although the entire system costs £30,000 (including all nine elements) Systemsolve believes that it

INTEL'S first application for its

32-bit microprocessor is an evalua-

tion kit called the Intellec 432/100

system which will be available in April at a US cost of \$4,250. The system will include a circuit board,

evaluation software and documen-

The three-chip set is packaged

in a 64-pin chip carrier. Two of the

chips make up the unit's general

business requirements, such as sales, purchase and nominal ledgers, sales order processing and stock control, to the needs of the bookselling industry generally, and TBL in particular. In stock control, for example, there is a facility to record gratis issues of a book, and perform stock costing

The specialised modules reflect the varying marketing methods used in different areas of publishing. The paperback features offered by Booksolve deal with high throughput "hype" methods used in paperback selling, and include bestseller lista, dally sales and income reports, and the moni-toring of new titles and their tar-

Another module deals with the educational market and works largely through the distribution of inspection copies. It is not as time dependent as a fast-moving paper-

unit. The third chip is an interface processor. Each chip has about

tions for the 432 include banklog

cations switching systems,

PABXs, online office information

systems, computer alded design, multi-user business systems, fac-

tory automation, control systems and voice and pattern recognition.

transaction systems, telecommuni

Intel says that existing applica-

200,000 transistors.

Available next month

3081 EARLY DELIVERIES

Atlantic Computer Leasing

has new 3081 Computer

IBM deliveries:

July

Systems available for lease

on the following confirmed

February 1982

April sold 1982

December 1982

Memory sizes up to 24mb available,

AN unline system designed especially for the book publishing industry has been launched by ICL

Celia Bogan, o director of United Leasing, and innovator of the company's "Art Rental for Offices" scheme, standing with the Landteer painting "An Arab Horse with Turkish Attendont".

# Celia gets her act together for a West End lease of life

THE computer leasing industry may be risky, but having survived in it successfully for more than a decade (attring at a very early age), Celia Bogan of United Leas-ing has extended her sphere of interest into an even more precarious

On a visit to New York last year Ms Bogan was bowled over by an "off-Broadway" show with the unusually long-winded title, "I'm Getting My Act Together and Taking it on the Road". In fact she loved it so much that she snapped up an option on the UK rights.

With £100,000 worth of backing from Celia, her industrialist hus-

band and about 40 other "angels", the show opens in the West End Apollo Theatre.

It is a musical with words, oll about a 39-year-old ex-cabaret singer who wants to get back into show business after fulfilling the less glamorous role of housewife

Celia admits that her first stab m theatrical production was encouraged by the provisions in the 1980 Finance Act which encourage the entrepreneur by enabling losses from a new venture to be written off against post-tax income. But with a three-year run in New York behind it and successful stagings in Los Angeles and Chicago, "I'm Getting My Act Tin-

goldmine for Celin and her asso-

At the same time she is playing safe hy retaining her post os a director and solesperson at United Leasing. This work still occupies her for nine munths uf the year and is not entirely tied up with the hard-nosed and enhances husiness of negatioting computer leoses.

About two years ugo Celio also introduced the company's "Art Rental far Offices" scheme, a bright idea hut one which has not really caught on yet mainly because most firms are unt terribly keen on adorating the walls of their offices with original paintings at the height of a recession.

# for DG's 32-bit mini

MAIDENHEAD-based Leases

Snitware is the first UK organization to install Daja General's far 32-bit computer, the MV/8000.

Leaseo, which has a solid based Data General experience, will as the MV/8000 to demonstrate at Composs package, a broad ranged commercial systems that can me that General equipment making from Nova machines upward. The MV/8000 will also be used

for the development of other one-mercial and technical packages at fur internal administrative require ments, including a word procesing service using Data General's Az-Text software.

One of the big attraction of the MV/8000 for Leasco was its conpatibility with the 16-bit Da General machines.

Part of the consulting arm of its Reliance Group, Lease Software employs 150 professional staff.

#### Evening with **BCS** winners

ter Society Award will be maken the huffet supper meeting on April 22. The three are ICL's coment addressable file store (CAPS), &scorch Machines' 3802 microunputer and British Telecom's Pre-

They will be described by Vr. Maller of ICL, Mike O'Repu d Research Machines and Richard Hooper of British Telecon, who will each include an update of their reception in the market.

The meeting will be in the Velleome Lecture Hall of the Unyal Society at 6 Carlion House Terrace, London SWI, from Just lickets are £15 Including suppl (£10 for BCS members) and pr available from the BCS.

# Signetics to make M68000 - so what happens to Rockwell deal?

in the morket are soid to use be-liveen 20,000 to 30,000 transistors,

the basic elements of integrated

oubt whether it can be manufac-

Signetics, with parent company Philips, is to second source Motorola's 68000 16/32 bit microprocessor and fomily has raised doubts about a prior agreement along similar lines between Rockwell and Motorola.

lo 1979 Rockwell ngreed to manufacture the 68000 and some peripheral devices, while Motorola to manufacture Rockwell's 36K-hit bubble memory device.

The 68000, although regarded a a 16-bli microprocessor, is one of two devices around at the monent claimed to have an easy modification process to a 32-bit device. This feature becomes attractive to systems manufacturers as it makes heir transition from 16 to 32-bit operations aimpler, cheaper and

However, obtaining this feoture
4 so easy feat, and it has taken
Motorola 70,000 transistors to do

Other competition exists for the
68000. National Semiconductor
hos recently announced its 16032

with a 32-bit internal architecture. Intel is the only company to have announced a true 32-bit microprocessor, the IAPX432, for the com-

The other ovoilable device with this property is Zilog's Z8000 chip, second sourced by Advanced mercial market.

More doubt has been placed on
the Rockwell/Motorola agreement Micro Devices in Sunnyvale, Caliby Motorola's decision to continue fornia, and adopted for use in their s own bubble memory design for computer systems by Olivetu and a 1-megabit chip, and not to produce a lower level chip with the Rockwell design. More recently, The complexity of the M68000 design has caused some industry Rockwell announced its exit from the bubble memory market altospeculators and competitors to

gether after an investment of about \$15 million. tured at all, and Rockwell admits that It has had problems. It expects - Both Motorola and Rockwell to sample next month, and prodecy that the agreement will be duction quantities are due by the delay of the 68000 has been put down to incompatibilities between agreements have been signed with

the two companies' technologies.
Rockwell's future plans include litachi and the French consortium Efcis, and NCR has comthe manufacture of four peripheral 68000 chips: the 68120 intelligent peripheral controller; the 68451 mitted itself to using the 68000 in memory management unit; the 68450 direct memory access controller and the 68561 data comprocessor which is a 16-bit device munications interface device.

Motorola, are expected to be produced by Rockwell later this year. The 68540, designed by Hitachi, should be available next year and the fourth device, being developed by Rockwell, is expected in late

Signetics expects to be produc-ing 68000s from its Advanced Technology Centre in Sunnyvale by the autumn. Volume production is expected in early 1982 at a new plant in Sunnyvale. Peri-pherals are planned for production

in a new plant in Albuquerque.
At the same time Philips plans to produce samples of the 68000 from its MOS VLSI facility in Hamburg. Both companies have a free hand to develop what they like, as long os it conforms to an agreed common architecture. Such a development could include up-grading the 68000 to a 32-bit de-

Plans to develop their own 16bit microprocessor similar to the



Two high quality printers have been released by Commodore for use with the SuperPet business system. Both are priced at saider £1,000.

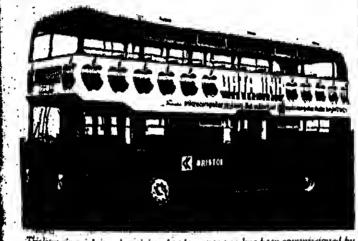
# Printers for SuperPet

dore's Systems Division. Both cost under 1,000 and require no external interfacing between Pet and

The 8026 letter quality printer and typewriter has interchangeable 96-character daisy wheels and can operate at a speed of 17 chps. It

TWO high quality printers for use with the SuperPet business system o typewriter with 48 characters, an erase tape allowing for up tu 1400 corrections and it costs £995 plus

> The 8027 is a quality letter prin-It is a daisy wheel printer which operates at a speed of 17 chps, and is available for £850 plus VAT.



This long gimmick in advertising Apple computers has been commissioned by Daulink Microcomputer Systems of Brittol.

# Specially for the dentist

spi hat energed from US comput-in company, Computer Informi-tion Systems of Arizona. Called the System 5000, It has been de-land specifically to handle den-

the system comes with standard software that includes accounts myshic and receivable, patient repaurance forms, patient biling and word processing. Prices and it \$14,850.

At the same time, an investiga-

MICROCOMPUTER for dent-in his swerged from US comput-tion is being carried out to find out him technology might best be used by dentists in the UK. Consul-by dentists in the UK. taney cumpany, Seicon, is being sponsored by the British Dental Association and the Department of

dentistry, compiled from in-terviews with dentists who have

# Lompetition in colour

ed competitors in the Amerimarket to reduce prices of heli coour systems. Texas Instru-Apart, have decreased their T1994, and 400 helrs by \$300 and

production of Commo a special video interface integrated or 170 colour graphics per circuit, giving it enhanced graphics per circuit. eight-bit microprocessor from MOS Technology, it sells for \$299 in the US and probably \$400 in the

heir T199/4 and 400. Commodore claims to have a three-month backlog of orders to Japan, although there are three similar Japanese products on the tharket there. The company coosiders that if the VIC-20 sells well and almiar to that of the Pet and will be "plain sailing".

## he micron dRAM from IBM

cientiats at IBM's re-York The fabrica claimed to be fire

#### System that lits a briefcase

A HANDHELD computer system that fits into a briefcase has been launched into the US market by Ispanese company Mutauthits. The system is similar to the Sharp PC 12 11 pocket computer, although it is aimest double the prior of the 140 Rharp system. price of the £100 Blisto system.

# CENTRE INTERNATIONAL ROGIER. BRUSSELS MAY 5-7, 1981

IS an important specialist exhibition for all who are interested in small computers, peripherals, terminals and microcomputers. It is ideally suited to those who are looking for immediate, low-cost solutions to their computing problems.

Sponsored by the leading publications "Computer Weekly", "Systems International", "Data Processing" and "Practical Computing" in association with the leading Dutch publication "Computable", Compec Europe has now established itself

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\*Please note applications received after April 6 cannot be

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# Relational database for Unix

A RELATIONAL database for use with the popular timo sharing operating system. Unix has been released by Relational Database Systems fix of Sunnyvale, California. The Marathon DBMS, dealt with in this country by Keen of Nottingham, is said to contain all the power and flexibility of maintained produced by London software house Systematica. Managing director Hugh Neffendorf says an article about it several weeks ago has produced over 45 enquiries. "Although the article was only a

There is also a report writer, Age, and a data description lan-

# Software package success

"Although the article was only Its facilities include a data entry language, Enter 1, used for file creation and maintenance, and a query language called informer which is interactive and "Englishlike", allowing data to be yiewed of written on to a scratch file for creation and to a scratch file for creation and to a scratch file for creating the article was only a language, Enter 1, used for file paragraph, and did not include a phone number, we were amazed at the response. Over 45 organisations made enquiries, and about a quarter of these bought the program."

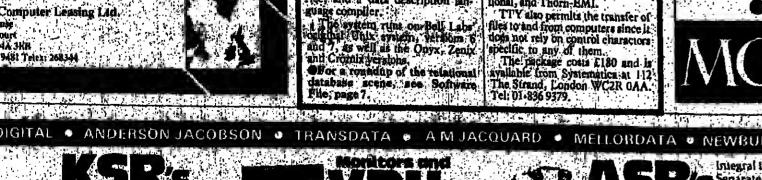
London Transport, Standard Telephones and Cables, F International, and Thorn-EMI.

Try also permits the transfer of files to and from computers since it to a not rely in control of the standard property.

The lowest prices Britain?

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OFF THE SHELF DELIVERY • NATIONWIDE SERVICE



DIGITAL . ANDERSON JACOBSON . TRANSDATA . AM JACQUARD . MELLORDATA . NEWBURY LABORATORIES . TEXP eparate P/T Cassette units from 243 per month

eparate Diskette units from £60 per month Chatser Mike Branke or Philip Ely. Tel: 07535 55211

# Part 4 of our series on setting up a company

# How to finance that business venture without taking a loan

IN the last article we broadly distinguished between loans, which Systime. require regular capital and interest If you decide that you would ing the cash flow with negative services which have emerged. payments before positive income arises, and enoity capital, which has none of those effects.

Equity, in its simplest terms, is a non-recallable loan at interest rates which the company itself can among the best-known figures to enter this field recently (see adjoinrates which the company itself can

Equity, while giving a company relief from payments which may become onerous to the point of fatality at times, also gives a company the opportunity to relate its scheme is administered by a cenits shareholders expect. The general return for good performance is further opportunity to raise equequited on a stock exchange, to sell cupity at a profit. For instance, at least one American computer company was reputed to have spent that a company should have a proseveral years making more money from selling its shares than it did

from marketing its products. In the computer financing field rhere are three traditional main suppliers of mixed equity and loan fooding capital. They are the National Research and Development Corp, the Industrial and Commercial Finance Corp, and the National Enterprise

The NRDC has a strong reputation for funding basic research, though its balance sheet shows a hias towards university type projects. Lately the corporation has been paying a large volume of tax, which suggests it is not investing

The ICFC has a lang and distingalshed history, with some Thomanagement team;

mystement in almost every big computer company in the UK.

The National Enterprise Board, while best known for its past or present involvement, with companies like ICL, Ferrantl and Plessey, has also made a series of aignificant investments in much smaller.

Tho management team;

Plans of what the company is going to do;

Details of producta;

What the manufacturing prosety, has also made a series of aignificant investments in much smaller.

What R&D is planned;

repayments, and which can like to look at other sources of seriously handicap the growth of a equity funds, however, there are sotall computer company by load- three new and not directly related

First there is the computerpriented broker. A good example is Brian Mills, ex-managing director of BOC Datasolve, who is ing article).

Then there is capital funding from banka, an example of which was recently set up by Citibank with £12.5 millium to invest. This performance directly to the reward tral team, heavily biased towards

computer companies.

John Littlechild, one of the investment officers concerned, exity capital, and where a company is plains that the scheme is intended duct and at least a few customers,

before approaching Citibank.

The fund has been rituning in the US for 10 in 15 years and numbers Datapoint, Storage Technology and Applicon among its

Littlechild stresses that Citibank recognises that many computer companies require long-term funding for profitable growth. "We are not an in and out organisation," he says. "Once we are io we stick with nur clients,"

Citibank emphasises that it is investing in the management of a company and looks for a coherent and experienced team to lead the project. The initial presentation to it will be the potential borrower's business plan, and Citlbank would look for the following points:

 Details of existing customers; Cash flow statement. would take is about £200,000.

There is no upper ceiling and Citi-bank often syndicates with likeminded investors to spread the risk and increase the funds available. For those who prefer to seek a more anglicised source of funds, s number of stockbroking com-

panies are beginning to specialise in organising equity for new com-One of these is Greene and Co, whose statisties frequently sppear

in these pages.

Hesaltine Moss and Co. he explained why many computer companies might lind a atockbroker a congenial and

"Over the years, Hesaltine Moss has built up a portfolio of private and institutional inveators in the UK. We know the clients intimately and can usually arrange the most compatible match of investor and recipient. Frequently we can arrange local participation in a company which will add to a company's olarketing and other

Where a hourd appointment is agreed we can arrange that the match, as well as providing the investur with a point of cootact with his investment, will also provide the recipient with u

"By atarting with a stockbroker, a amall company begins the logical preparation for a atock market quotation,"

In the next article in this At the moment in the UK there series, we will look at how a com- is a strong two-way interest in puter company might get a stock market listing, and at the experiences of some computer companies which are quoted on the Londan Stock Exchange.

# Another company, which has six offices straddling what may well hecome one of the UK's Silicon Valleya down in neral Berkalire, is Martin Ingram is the research partner in its Lindon office, and he explained why many computer

BRIAN MILLS, former chief executive of BOC Datasolve, and one of the best known names in the UK computer industry over the past 20 years, has got together with Stanford trained David Ferris to form a new computer-oriented finance consultancy called Ferris Mills & Associates.

The pair, who between them muster over 30 years' experience in the data processing industry, feel that there is a huge need for the kinda of service they offer.

small computer companies, principally by finding loan and venture or equity capital from their many contacts in UK and US financial

He said he acted an adviner in both borrowers and investors, depending on the requirement.

so much money chasing so few

At least part of this "money" would use people like Ferris and kind of computer companies in which to invest. Mills stresses the need to begin

the relationship well uhead of a request for funding. It is difficult in ourst finuncial matters if the parties don't know each uther prior to the request he says, so the best approach is to "get to know cumpanies like ours before a specific ris were invited to little a purtner for the company, but failed be-cause of the very short time span

A reully good match between a computer company and a suund and suitable financial partner can-not be made overnight, Mills said. In most cases neither the investor nor the company want all their eggs in one basket. Both Ferris and Mills stressed

the need for a really good business plan when a company is looking as "discontinued operation

explansion. Even a good compar-can lone potentially sound inve-tors if the presentation, what UK brukers would call the "prepectua", is poor.

Ferris stressed that a plan did not need to be either long or our

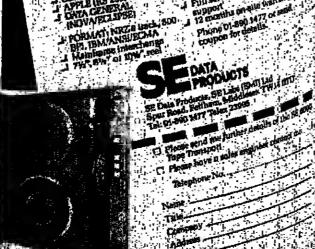
Ferris, who has acred a merketing consultant to Historia Intel in the US, sald that the sum available for investment to who they had access ranged from me aged L1 billion, trusts down to small private clients pulling of

All systems go

ONE OF the largest independent disc suppliera, System lausticalian announced a new turnore in profits high for the year ending to December, with revenues of 33. million (\$25 million for 1979) as post-tax profits of \$1.9 million excluding \$516,000 tax credit, from what the company desired



kth mix



transport for £2,300, complete sub-system

# **UK** systems house moves into Dallas

by Keith Jooes
OIL-RICH Dallas is the location cial nature. It would not be "technologically exciting". The ware house, Compoter Systems In-ware house, Compoter Systems In-ternational, for its second office in the cumpany's businesa.

no expansion plans for the UK. CSI's operations in the US started in 1971 and led to a foll aubsidiary company, Computer Systems Development Inc, being setup in New York in 1976. Areas of activity have include database nolementation for banks, insurance companies and stockbrokers, and message switching network development for members of

in Dallas would be oil ennipanies,

Measures to achieve this have CSI managing director Peter Hugler said Dallas was chosen because it was seen as one place unaf-

There are three companies in the CSI group, the other being the IBM-based bureau Computer and Accounting Services. All three are owned by the unquoted UK holding company, Lopex, a major force in the advertising and market research bosiness with a turnover

of about £90 million a year.

The CSI group ehalked up pretax profits of £157,000 in 1980 on a £1.7 million turnover. The US alde contributed about \$150,000 to the Hunter said the main customers profit figure and \$1.5 million to

Turnover and net profit figures

for the nine-month period were \$20,629,000 and \$3,043,000, res-

peetively, well up on the

\$12,738,000 and \$1,708,000

# Profits doubled at Cullinane

TURNOVER and net profit up 65% and 110% respectively, have been announced for the third quarter ended January 1981 of its current fiscal way by Culling 1981. rent fiscal year by Cullinane Database Systems Inc, the firm that used to be called Cullinnne Corp. Theactual figures were \$7,715,000 and \$1,355,000.

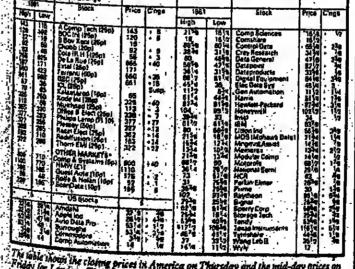
Cullinane attributes £300,000 or inf January 1980. MSA share price

THE share price of Management Science America, which announced ita intention to go public lat week, is likely to be between \$13 and \$16. The initial offering consists of a primary 950,000 shares followed by o secondary offering of 550,000, which will bring MSA between \$19.5-\$24 million and leave outstanding 6,165,496 common shares.

#### Public offer

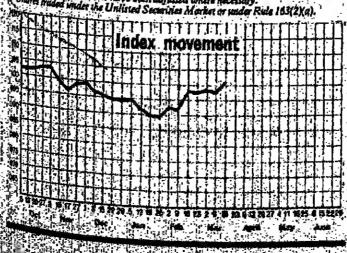
PERIPHERAL and multiplexe manufacturer Emulux has filed a registration at a time a registration at a time a registration at a time at the US Securities and Exchange Commission to make an initial public othering of its common stock. The 742,869 common aboves, 425,713 from the common and the rest from the company and the rest from sharchuldera, will be sold to raise money for capital assets and repayment of hank loans.

# CW SHARES TABLE



while thouse the cloting prices in America on Thursday and the mid-day prices on the London. The thore index is based on the prices of the UK companies in the Highs and Lous have been adjusted where necessary.

One mided under the Unlisted Securities Market or under Rule 163(2)(4).



# Digico parent raises £2m for expansion

capital of Spaoverne Investments, the parent company of Hert-fordshire-hased mini maker Digico, has raised about £2 million gross for expansion of the groop's product range. This will include a move by Digico into microcomputers.

The issue share capital has gone op from £303,000 to £1,002,295 after a private placing of 1,212,000 before tax were £310,000.

shares of par value 25p each at 165p per share. The enlarged issue capitalises the group at £6.6 mil-

Digico and its offshoots, includ-ing Digico Maintenance, Digico Consultancy and Digico Rentals, accounts for about 70% of the turnover of Spanverne, which for the year ended last September 30 amounted to £3.5 million. Profits

Some member firms, according to Mike West of the Beonomist

Intelligence Unit, had detected in-

across the computer industry incloding programming and training activities, and also includes the magnetic tape and printer sopplies company MIBI.

A statement from Spaoverne says the extra capital will be used primarily to expand the group's product range and to finance longer-term opportunities for expansion including acquisitions".

placed with City institutions, though some existing shareholders chipped in with £228,000. The placing means that net tangible assets valued at £1.25 million last year are £2.89 million when adjosted for the placing.

The placing was completed by Robert Fleming & Co in conjunc-tion with stockbrokers Kitkat and

excess capacity. Big savings could be made by sending DP work out to hureaux now, said Ian Hancock

# Consultancy business beats the slump PROSPECTS for consultancy firms look good, and some have overseas, just keeping pace with inflation and reversing the downward trend overseas: Middle beginning to get our house in

had a major upsurge in business over the last few months despite the recession. That was the view of Martin Vandersteen, of Arthur Andersen, chairman of the Management Consultant Association agement Consultants Association, in presenting the group's annual This is despite the high pound which is making UK consultants on cheaper than their Canadian

After cutbacks in staff most member firms are recruiting again, Vaodersteen said, with much of the increased demand for consultaney being in the data processing and information systems area.

creased in terest from foreign countries in investment to the UK. Pirms' turnover has icereased countries in investment to the UK.

16% over 1979 both at home and This seemed to be due to bargain

Eastern business has fallen off dramatically, owing to the "Death of a Princess" row in Saudi Arabia and Cher firms are working with the British Consultants Bureau ro the troubles in Iran, but there has been a "aurprising increase" of 46% in work in North America. develop business prospects in China. If the World Bank's plans

to give substantial aid to China succeed, an "enormous amount of work for the consultancies will follow," according to Tony Howitt uf Peat Marwick Mitchell. Much of consultancies' current work is in helping firms hold down costa and in "positive rescuea" to

Vanderateen said. A working party has been formed to identify targets and persoade decision-makers i government of the advantages onew organisational methods and technology.

The North American business was mainly advising on new busistave off bankrupteies. This

involves recommending cost-eutting control systems and in conservation.

# Argus 700 Series 2.

Multipower multispeed multichoice multiprocessor.



#### Flexibility .

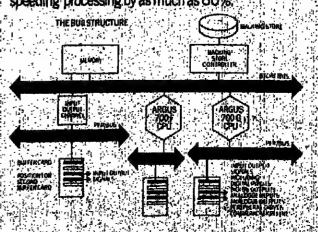
Argus 700 Series 2 is based on new versions of the Argus 700F and G central processors which can be used individually or in closely coupled groups supported by a multiprocessor operating system.

In its various configurations it's a package designed to meet the needs of almost all control, communications and information handling applications. A cost effective system, competitively priced.

#### Speed

At the top end of the range Argus 700 Series 2 offers processing speeds of up to two million instructions per second.

There's a local and cache memory for each Argus 700F and a cache memory for Argus 700G. Result, reduced load on the memory bus. speeding processing by as much as 60%



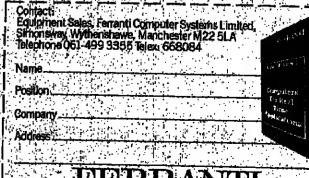
Intelligent channels with fixed programmes handle routine operations. They have access to the memory bus and operate in parallel with central processors, reducing the central processors' load substantially.

#### Security

No other computer company has more experience than Ferranti in designing dual computer systems for critical, high security tasks.

The architecture of Argus 700 Series 2 provides for pairs of computers to share memory and backing stores and to access common input/output drivers.

From the system builders. The system builders computer.



Computer Systems

# PRINTERS AND VDU'S **PRICES**

Extel, main distributors of DEC. Newbury Lebs, and Techtren, are offering the following lients at substantially discounted prices:

(for off-line data preparation and storage)

Ring Peter Scrace or Stan Woodgati for latest and lowest!

EXTEL ENGINEERING 73-75 Scrutton Street Landon EC2, 1st 01-7392041



that's what you expect from TDS

ADDS 20 a super styled and data communications problems with Comm-Stor

Matter of

life and

death

THE article (CW, March 5) des

cribing cash flow statements, seemed informative and well

statement: "By subtracting your

expenses from your estimated in-

come you will quickly see whether

This can only mean that your

profits determine your life expec-tancy. Did the author really mean

He then exploins: ". . . at the

have to achieve hy way of income

to become viable . . . "
Ignoring this repeated implica-

tion of imminent death for all low

carners, it is wrong, surely, tu sug-

Perhaps it would have been bei-

ter to have written: "By subtract-

mated income you will quickly see

whether your business would be

worthwhile or not . . . . III the very

least you will see what income you

will need to cover your expenses."

Siberian

logic

Iva happens to be a region of the Far North where there is always

snow, but never bears. This makes

it rather difficult to decide what

colour the white bears are in that

region. Hence the villager's preva-

heard later that night the invern-keeper say to une of his vodka-sod-

den regulars: "Sometimes I wish I were an English tavern-keeper, tr

is said that there everyone talks

only of the weather with the their

igreement beforeland that nobody

The fly on the wall no doubt also

**GREGORY ADAMS-TAIT** 

ing your expenses from your esti

hecome viable?

vou are viable or not . . . '

vritten, but it made this strange

# Learning humanised input from hobby computer practices

industry at making a system difficult to learn and understand Now, in many respects, they are leaders in "case of use" practicea.

The reason is simple: The user is the buyer. If the user/buyer does not easily understand a program in the local computer shop, there is user/buyer is not pleased with the product after a few weeks of use at home, in the shop or in the office, then there is little reason to rave

The microcomputer personal software must be user friendly to survive. Laar summer in Kuwait I noticed that the managing director of my hotel had called a conference of European Sheraton manageinent. I couldn't help noucing the Apple computer as I passed their conference room. He was so enthusiastic about the Apple that he was taking a personal initiative to "sell" the system to the international management. His wife had successfully used one in her gift shap, and he ond his colleagues had successfully used Visicale (a best-selling financial modelling program, with ease of use as a feaure) in the hotel business.

systems. It is the design of the human interface to the computer which has changed for the better. I suspect we all have some les-

that'a why I was there. I don't think they had ever been exposed

Lt is the design of the human interface which has changed for the better.

One exchange between us was typical, and sticks in my mind: I suggested that perhaps it was not alwaya necessary to require the user to hit the "ENTER" key after all data element entries (for example after YES/NO and commands of fixed length). This gave rise to all manner of objection, explaining why the enter keyatroke

I told them that it was their hardware, and they had better change it fast if that was true, thut

A single muemonic hevstroke, and no rentry or enter key, is all that is necessar to command most aspects of the automated Design by Objectives system on the Apple II (designed by Lech Kreapik and Tam Gilb). This view is from the

sons to learn from the beat software out there. I receotly taught at a major manufacturer's software site a course on humanised toput. They were making administrative systems software for an international market for large-acale hardware. Somebody knew they needed to improve their ways; to a microcomputer or even a de-

mentation. He replied that he hoped written documentation was unnecessary. All programs were How many of us can say that obout our present systems? Not many, I suspect. Yet what is stopping us from designing at least our next system that way? Surely the cost of hardware is not a relevant consideration any longer, at

least not with the human pro-ductivity benefits to be gained from such an approach? In speaking to one of the interfamous micro-software designers, I was told that the only reason he designs ony documentation into his packages is for marketing. It is to make the buyer feel getting something for his money, hy providing a visible product. It is also to make it slightly "hardware requiring it". less cusy to pirate the software by

mere diskette copyling. that high an executive level - nor they couldn't sense keystrokes as at the "lady shop-keeper" level, well as an Apple could. Before I visited my manufac-turer client for the humanised in-

put course, I asked to read some of their recent manuala. My reaction **★ DBO JUNCTION** ♣ was that everything - avery single data element of the thousanda de-S — SIEARCH
A — SYSTEM ALTTRIBUTE SPECIFICATION
F — SYSTEM FUNCTION SPECIFICATION
T — TIECHNIQUE/ATTRIBUTE HANDBOOK
D — DIESIGN TECHNIQUE SPECIFICATION
X — ATTRIBUTE/FUNCTION/TECHNIQUE TABLE
O — O(UOTA/CONTROL
M — MIECCA
E — EIVOLUTIONARY DEVELOPMENT
INSPECTION
CUIT signed into current ayatems - was capable of interesting levels of improvement. To test this hypotheis, and to dramatise it for the partleipants, I laid out seven current system manual in front of the class and asked them to pick random manual and page numbers. We theo used the chosen page to seek improvements. We started upper left and looked critically at every single element of sereen output or

> provements in nearly every single element we attacked. In fact a very large proportion of

the Apple recently, simply because it makes the workflow so much

easier and faster. But who knows,

maybe the idea was originally self-

defence so that by avoiding hitting

the return buttoo, you also avoid

that elassical Apple problem of hitting the "RESET" button

which unfortunately was right next

Recently an Apple colleague

gave me a set of programs he had

written. As we were copying them over to one of my diskettes, I

asked if he had some written docu-



Tom Gilb is an independent consultant, lecturer and author on computing topics.

mately eliminated (30 to 50%) as otally superfluous or as replaceafar more efficient means elaewhere. Many, although not all, of these improvements require hardware. But if the marketing advantage is sufficiently great, it

At the same lab, I was looking at a new hardware/software product for message handling and text processing. It had been out in the US for a year and was coming on to the European market. I tried the aystem out as a novice, and one of my first questions was "Why do I have to push the "REQUEST" button before entering a command from the main menu? Tu get list function I would have to press five keya (REQUEST, LIS, ENTER).

Surely the cost of hardware is not a refevant consideration any longer . . .

To make u short stury even shorter, the developers said. That's a good question. We have no answer. And they indicated that they had decided to eliminate the need tu press those huttons (RE-QUEST, ENTER) and to shurten the most frequent commands (L being for example unique for List). Nobody had ever thought these simple thoughta it seems.

anggested that their corporation ahnuld treat them all to an Apple, to spuil them with humanised systems design ldeas.

Gilb's Hypothasis: The

microcomputer will spoil the users so much that the big boya won't be able to survive with the badly designed human interfaces thay have required input. Sure enough, we managed to suggest interesting imbeen imposing oo users and programmers alike for two decades, The mighty micro wins again Tom Gilb

screen or on an exhibition stund. It scems they are still kept in their place rather thun sceking to estab-lish their place in the industry.

in computing

Opening the

The female DP problem is not confined to the UK. The news that a woman had heen oppointed n vice-president with responsibilities for 167 DP personnel was front page news recently in a leading US computing journal. Few weeks go by without details of fervent groups of women's libbera joining orces to challenge the male doni nation of computing.

In the States, the three leading groups are Women in Information en in Data Processing, and The Association for Women in

The UK as yet can boast only une such female chanvinist teom, Vomen and Chinputing.

What all these groups lack part fram a co-ordinating liaison officer - is an awareness of the problema facing DP management. The necessity in get the work nut nn time, even if it means tyorking extended huttrs, is the overriding

This objective often conflicts with the female members of the installation tenm whn see their priurities as being their weekly visit to the keep-lit class, the laundromat or movie. Their enthusiasm for the industry surps short at 5pin when the programming hrunch subroutine is drupped in tarour of the local

Tesco branch shopping romine. Hardly surprisingly, many DPMs regord the presence of a woman in the operations tourn as about as welcome as a system au-dit, a visit from a PCM supplier or a hike in the price of software. As

operations rest room has for ma generations been a male present.

Even Ms Steve Shirley who rest the admirable F laternations ganisation, a home croft programing operation, somitte women are less willing to will late, to make up for s lay lunchbreak or to jain in the find couple of drinks after work. This, to many involved in or

puting, would seem to be it crunch. Data pracessing, where organising, operating or selies, i essentially a team after. The involved are frequently indiffer as to the time of day (or night).

Computing, it would seen not yet ready for women. When women are ready far computer an equally contentious quests one which in the present cover ment could find the writer be hung up outside the BCS has quarters being displayed at h NCC Manchester, ICL at Pure and IBM at Portsmouth,

However, even the most ded cated sexist would have to age that women are naticeably thing the DP ground.
Both the IDPM and the TV

are concerned with the tole of women in DP. The TUC work like to see more female involve ment in computer training ourse while the IDPM has launched a "helping hand" project to the those willing to climb the proper

At a time when lacrosing numbers of tyonien are taking university computing course doors will have to be opened & women in computing. And they duors cannot be restricted to the dain prep, machine operated

#### 10 YEARS AGO

From Computer Weekly of Morch 25, 1971 . . .

REDUNDANCY in the compu- ducer of semleoadus ter business is becoming commonplace. So far the brunt has n on the aervicaa acctor. Now, however, reorganisation in uaara' computer departments is beginning to tell. In three companlas alone, N. M. Rothschild, the British Steel Corp and ICI, more than 200 people are to lose. their joha or faae redoployment The Cogar Corp of New York, which claims to be the world's largest independent pro-

mamories, has set up a Europea headquarters, based in Musch An NCC survey put the is-ercose in ataffing levels for offer installations valued at of 120,000 for aystem and programmera, operators and programmera, operators and preparation personnel research valy, at 3.3, 5.8, 3.8 and 13, at cent respectively. The minimum sigma 8 computer from het Xerox Data Systems wes a nounced in the US last week.

puring services association (diametrial methat "Ms. Carol Cloke) has joined ADAPSO's legal his.
Visions have been swinged through my flead of some fleaths are person fearlessly spearheadh is computing business jobbym is computing business jobbym is computing business jobbym is washingstod. Clearly it is swing seous not to let your business will be the manual manual speak to the manual shall be to the property of the property

as fair by any other label.

# **ComputerWeekly**

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS Thursday, March 26, 1981

# Investing in ICI

IT WAS a nice line spun by Sir Keith Joseph in the Commons last week when he said he had been forced to step in and support ICL because the government is a big ICL user. It was also nonsense.

Does anyone scriously believe that, ahould ICL be taken over, the new parent would not continue to aupport its installed base? If they do, look at the examples where such support was continued quite smoothly - RCA, General Electric and Xerox to name three (and Singer a fourth).

Sir Keith should not apologise for putting some of his Department's guarantees behind ICL. He should be definite that he will not stand idly by while ICL'a trading difficulties leave it vulnerable to the passing whim of every foreign multinational.

It is a measure of the muddled thinking at his Department that he has been afraid to show an interventionist hand and ended up merely tickling the problem. ICL did not get into its present troubles by accident, and will not trade out of them without substantially strengthening parts of ita product range and beefing up parts of its marketing

.If that demands management changes, so be it. If it demands a great deal more cash for investment, so be that as well. But it must surely demand same more tangible commitment by the Secretary of State to the British computer

# Data protection

THE Home Secretary's statement on data protection is as tanialising as the cavortings of Gipsy Rose Lee. Mr Whitelaw has announced n series uf ambitious tasks he has set himself without saying linw he intends to go about them. There is serious doubt in the industry that the proposals could be implemented at ull in the absence of a Data Protection Authority, and it is not clear whether the Home Office, which refuses to explain the statement any further, has worked out a scheme for doing the job. Perhaps it is simply hoping in its simplicity that one will be found.

Cost is the reason given for why the idea of an authority was rejected; it is much more likely that the real reason is deological, and there is plenty to be said for this view. It fiss long been argued that data protection legislation is attacking the problem from the wrong end: that it is actions not information that need to be enstrulled, and that a Data Protection Authority could itself be a sinister "Big

For this reason the Computing Services Association proposals merit careful scrutiny. Redress of infringementa privacy could best be carried out through civil legal action. The problem with the Whitelaw proposala is that they try lo implement the controls from the Lindop report without the Lindop mechanism for doing it. Where would the codes of practice come from if not from a DPA? Who would police the registry and the "requirements" if not the

It is probable that the answer to the last question is the Home Office itself. But Sir Norman Lindop has pointed out that it is the same Home Office that possesses some of the most sensitive files. No one should be poacher and gameeper at the same time, he feels.

The confusion has led at least one industry figure to summise that the Home Office staff are either incompetent, or know precisely what they are doing and are deliberately concealing this from the public.

Other countries are carrying on with their data protection schemes, and some, specifically the Scandinavian nations and Prince, are finding that registration systems are getting of cumbersome. There are moves now to exempt all but the most sensitive systems. By the time Mr Whitelaw's poposals are realised data protection may be a dead issue.

1984 and all that .

IHIS week's example of the meaning things people say about computing was sent in by I. Seifert of Associated British Codyul-

And who wine LS.

Color the KGB man, agid, "Can we flud out what is happening in Moscow".

Bestly done Comrade Koniev," Colonal Santorin said, and addressed himself to the computer terminal next to his sent symbols appeared.

On a display across airrors the narrow cavers a series of way that gibberish?" Koniev seised.

Portian Comrade, Computer language It says that the city whose are in shelters. The SAM betteries ringing the city are manuel and the defensive air patrols are airborne.

The finating Computer, by Alfred Coppel.

# User groups' main activity is not software copying!

ONE would take exception to Alistair Kelman's statement (CW, March 12) that "We must work for the elimination of user groups," if that remark were made from an informed position. As the founder of IPUG (South), now SUPA, one of the largest user groups in the UK, it would be dishonest to say that program copying does not take place, but the acale is so small that it can't be a problem to soft-

The true nature of our user

have been dumped or neglected by retail outlets who will sell a system or program which subsequently won't do what it was bought for Anything that educates in the field of computing ought not to be eli-

However, to return to the issue of copyright, it ought to be recog-nised that software outlets are quite capable of protecting themselves - either by "dongles" (from Worderaft) or security chips The true nature of our user (Commodore). Whatever the progroup is 10 help members who lection chosen, it should not add

am sure that SUPA is not alone in acting as an interface between a manufacturer and a dealer and the general public. And as long as that exchange of information contin-ues, I hope Alistair Kelman will

> JOHN C. NUTTALL SUPA (Southern Users of

work to encourage them, and not

tion and might indeed force a price

reduction to a more realistic level.

Pets Asaoclation)

very least you will see what you

# Replacing today's technology

seems as if the nation's Mechanics read yet another plea on behalf of the teaching of teachers of computing. I know that what I am about to state has been said before, but so far I have seen no reasoned re-

The point is that we do not need computer experts at undergraduate level - we need physicista or accountants or whatever. Unless and until someone produces a new sort of machine, teaching the use of computers to schoolchildren is on the same importance level as teaching them to use adding machines or typewriters.

Nobody suggests that the study of English is only complete if you have had an O-level course in the

papers ore now prepared on computer facilities. This might not matter, but at a time when education is being atarved of funds, the matter is of more than "academic I suspect that we are still suffering from a collective national feel-

ing that technology is rather like cod liver oil — a massive dose taken daily will cure all ills. Technology is actually a reaction to an immediate problem, and today's solutions are of interest only to tomorrow's industrial archaeolog-Expert computer manipulators

are the same breed as experts in using sailing slilps or steam en-

lng a member of MUSE outside school time. Eventually this year I have

helped persuade the school to in-

It is not even possible to plead

of a principle you forget

the needs of that job morket as a defence. No une who has used achool or college facilities can come, without some degree of culture shock, to the everyday use of computing power. One of the best programmers I have known had four O-Levels and near non-nume-

If the educational system is to be of any use, it should be concentrating on training minds that will devise replacements to today's technology, rather than on condi-tioning children to accept today's answers to today's problems as

#### THE villager of Uzbekistan (Michie's Privateview, March 5) was Financing teachers' courses perhaps an even better logician than Michie gives him eredit for. It could have been that Novaya Zem-

quired to pay(!) and offer my own

time (which to some extent I don't

In September last I enrolled, at

my own expense, for the BCS Part I exomination (£84 in all) which

It seems to me there, are too

many people abouting about

shortagea of teachers, not only in

this area of the curriculum, but no

encouragement or support comes

the county do not even recognise!

REGARDING the letter on the training of computer teachers (CW, March 12) the problem is not merely a shortage of courses available to teschers, but whether the LEA will support willing teachers in their plight to become more akilled in this area.

Let me relate to my own exper-I have taught in comprehensive for some time and I have always endeavoured to encourage and

times, purely on a voluntary

ONE of the problems that seem to affliet me and probably countless

other programmers is the forever

rubbing out of lines or parts of lines whenever a mistake is made, resulting in bits of rubber all over

the place.
There are so-called "magic" writing boards upon which the

writing disappears when the sheet is lifted up. I was therefore won-

Liveware File

I ONLY REALISED

THAT THE POLICE ...

WHEN I STARTED

JUNK MAIL

TO GET

troduce a CSE course attring as a fourth option in September. We have purchased two Peta out of school capitation and o set of auitable textbooks.

I have applied for literally dozens of short courses but have been refused flatly any aupport by Lancashire County.

I have also applied for the Presprontote computer appreciation at

ton Polytechnic course mentioned in the article, for which I am re-

size boards on the market on

which writing would disappear merely by stroking the bluot end of a penell against the offcoding

Analyat/program Racal-Decca Navigation,

JOHN C. FAIRWEATHER

HAL A COMPUTER

FILE ON MEL

A TYRE COMPANY.

SIGNED ROBBET MARK!

47.

Programmer's problem

Shadsworth High School dering whether there are any A-4

eventually suffer due to this reatriction) can exert pressure on the EAs to see sensel

right. Another glass, do I de-

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Disk packs

## different; it is not the programthe keys as depressed, and not recould be as bad as the rest of the ming languages or the database quiring enter/return key depression, has become very popular on

cent human interface

I will never forget seeing this chief executive sitting all evening enthusiastically building Visicale reports on his Apple - alone, no was necessary. The ultimate orgucomputer specialists, and no ment was sumething about the manual or written instructions of any kind. I never saw that enthusiasm or solo ability on the larger computers, and certainly not ut

KEY THE ONE YOU WANT

# **DOWNTIME I**

Now just take your average housewife... I WAS luming a bit last week over that an advertising agency had run. And everybody seemed auratorised household gadgets. There housewives were afraid of tech disastrous. For a start, plenty of I was in a shop in the Tottenham starting with an article that was given but machines and file, were for apart from the own.

starting with an article that was given four machines and the opened. "With the microchip account of promising to banish for ever the drudgers of domestic machines were a Prestel set a clear what your objectives are included by make them work. The achieve saything if you are not clear what your objectives are?

I was glad to see a Top Parcon microchips were a Prestel set a clear what your objectives are?

I was glad to see a Top Parcon machine in to say tin his own way. The housewives had a filled the problem of the machine that will make the heils and darn socks?

The main story, however, was were in the machine in the words of a problem of the main story, however, was were in the machine in the words of a problem of the main story, however, was were uniformly disastrous. The main story however was were uniformly disastrous. The main story however was were interested to be introduced to something very unfamiliar by interest of the agency the results. Of course, thus requires having knowledgeable fruitian beings to be introduced to be introduce

Scope for thought as a company collapses

the state of the s

involved in convoluted bankruptcy, maching proceedings and takenver, it seems. Then what about appear on the Anyway for an more purpling that a lot of Scope's belongings his hot 200 soften filters. We've than the leaflet for fairners. I have were in fact leased from another been trying to work out how you man Loyds Bank headed. Perti-

electronic piano that I assumed was for sale. "How does one work..."

"Dunno," replied the gormless youth, showing no interest in oh-laining my money. The labels on this keys were simost as unfielpful.

One of The Times correspon-

SOMEBODY was going through thrin Black Arrow and here was a return a collectifier when the lease her Loan Scheme. Do how the books of Scape Data Systems, list of this here so hease, including capitals. Perhaps you med a special approach loads it finally providing involved in convoluted bankrupicy, maching, and collect despite approach for advanced techniques of a machine.

Answer its no more nuzzling afformation that sucks. relopment of a machine that sucke the lertiliser our of the soil and repeats it into bags?



Don't panic

1 THOUGHT the phrase 'Don't push the sanie button's was purely imaginative, until I was riding in a imaginative, until I was riding in a lift at the Central Computers and Palecommunications. Agency the other day. There on the wall was a notice. "In case of breakdown, relephone the switchboard if no reply push the panic button."

I standed eagerly for a button that well actually labelled "Panic," within success.



By any other

trick!
However, there is a less close explanation. It is customary in its explanation. It is customary in its states for lawyers to be addressed as "esquire," and with itel lack exponent. For the niceus; of the concern for the niceus; of the title to legal ladies now, is not the nice to the ni

PROGRAMMERS PAGE

# **Basic for** complete beginners

ONLY a few schools have a specialised computer science department, and in many, the whole subject is left to a hapless arithmetician to read up, one step ahead of his class. But some people have criticised do-it-yourself study of programming languages.

just announced this month though, is a scheme to take the wind out of the sails of critics. It is a course in Basic programming designed to be taught by the non-ex-

signed to be taught by the non-expert, 10 groups of students. The difference lies in the video-base, claim producers Guild Sound & Vision of Peterborough.

The course contains 100 mlnutes of video teaching supplied on four cassettes in any of the standard formats. It is set up in short sections for step-by-step self study. The manual gives an outline of the complete course with hints on using it with micros. on using it with micros.

The course, called Basic: Ao Introduction to Computer Programming, is available from May

1. Details from Peterborough

The sixth ACM European

cooperation with Computer

March 30, 31 & April 1, 1981

regional conference in

Communications

and Microprocessors and Microsystems on

London, England



THE INTERNATIONAL

**COMPUTING SYMPOSIUM** 

Electronic clicks oud bleeps disturb the silence . . .

# catch you with

the supermarket, cames the library, as the most recent field of influence for the computer. Gone is the calm quiet, stirred only by the rustle of a turned page. It is replaced by the clickings and in-

One of the lotest to embrace the noisy chip is Colchester Library, administered by Essex County Library, which has spent about £400,000 on a totolly new system to match the new building it moved into last year. Now, when you return a book, it is no longer n fairly slow shuffle through banks of tickets, but a quick flash with a light ten carrees a heavened a mislight pen across a bar-code, emitung, if you pass muster, a high-

On taking out a book the ubi-quitous light pen reads off the barcodes both on your ticket and the book, pairing them. This alliance may not be sundered until the magic pen of the return sequence

The issuing machine can also be rogrammed to note an overdue rrower's number, and shrill out warning if he tries to take out mother. All the better to cotch you with. Publicly shamed hefore the waiting queue, it would seem an ideal aversion therapy for readers.

However this iso't really the idea behind the system. As county librarian Barry Langston explained, work has been going on for three years in collaboration with Blackwell's of Oxford, and the main aim is to free staff from electical duties on that they can be a elerical duties so that they can help

Apart from that, all date it readily accessible to every library hy using the database at County Hall in Chelmsford. Eventually, when everything's complete each library will have the facility to operate alone or to the int

Each night the memory disc containing all the information recorded on the Issuing mediate during the day is played to the main computer at Chelmaland. Book orders are typed out on VDU and order forms and printed bar-code labels are simultaneously produced. These are sent off to the booksellers who return the books labelled up and ready to go on the

When all the libraries in the country belong to the same system, nny book can be pinpointed on the microfilm entalogues in each building. That is, if there is any money left for books; and when you come right duwn to it that is what makes or breaks o library - the number and quality of the books.

# Contributing to Year of the Disabled

BRITISH universities are making a concerted contribution to the Year of the Disabled — presumbly because they are some of the last places where people can study projects of value, which are not necessarily commercially profitable. Last week Issex; this week Lancaster.

The Manpower Services Commission has funded the Microprocessor Unit of Lancaster University to develop special hardware for visually handicapped pro-

sity to devolop special hardware for visually handicapped pro-grammers — specifically for Roger Halbead who works in Nether-

Haihead suffers from retinitis picturents which effectively restricts him to a sort of tunnel vision. Several years ago, his deteriorating sight forced him to give up his training in accountancy. He attended an employment services contrain Sectland centre in Scotland, and was recomnended as having the potential for

A couple of A-levels later, gained in computer science and economics at Carlisle Tech, he was well on the way, stildying compu-ter programming at the Royal National Institute for the Blind in

Now 27, Halhead has worked Now 27, Halhead has worked for two years at K Shoemakers, Kendal, under the auspices of a scheme run by the MSC. Initially he was provided with a specially adapted typewriter, a tape recorder, and closed circuit television to help him work. However, there were further difficulties as the television set, could not be linked to the firm's main computer.

a programme designed to help local industry in the arch of Dr Peter Robinsoo, director of la-Unit. "We are delighted to find the equipment has a much when help the blind and parally sighted in other areas.

Tom Layden of the MSC concurred: "We will be able to supply on permanent loss that devices to people who are eligible under the MSC Special Aids to Employment scheme?"

Employment scheme."
Halhead himself is now limby it and is well pleased with the sea

# PUZZLER ... ... . . . .

# Not the winning limericks... but not bad for punchlines

vice, recently held a limerick com-petition, and over 3,000 entries were judged by Pamela ("Not The Nine-o'clock News") Stephenson

and poet Gavin Ewart.
The winning lines will be broadcast on Ceclax and published in the Radio Times.

Op Spot has scoaped three of

OPS manager Dennis King has a problem. "I'm interested," he says, "in finding out about other sites which have a 24-hour call-out

sites which have a 24-hour call-out and on how they decide on com-pensation." Shauld anybody have any advice, write to him at May and Baker, Dagenham, Essex. Brian Franklin heads a team of

group. Between himself, Gary

Sought match-moking tha

It said "You're unique, So she storted to speak

that some kind of shift allowance

To refute her computer to suit

We have a young girl operator Who swallowed her new

Now, when doing o sunt. She just presses her tun And the ouswer glows

RON MALEY

Sighed secretary Deboralt

"Things have certainly changed since my teens. My evenings of ease Are now spens punching keys And working hours gazing at

TONY DURHAM

# when we won't need back-up at a higher technical level." An advan-

# How to charge for a call-out Dennis, Colin Wingrove and Ray Nicholson a 24-hour, five-day-a-week full cover is provided. Respublic cover "We seed to see Franklin says: "We tend to or-ganise our social lives round the

Franklin reckons that they cope with at least one late night/early morning call every week. They are paid normal rates of overtime at time and a half for the extra hours actually worked, but both Franklin and bis boss agree At which point King added: "There should definitely be regu-lar payment for the call-out service." So, in order to present a

ment, he oeeds the advice of

King says: "I can't see a time

tage of having a support team is that there are always two opinions when something goes wrong.

The necessity for the odd hours is due to May and Baker's heavy commitment to online work during the day. If the aps department docsn't bave the databases in a fit state to get CICS up the following morning, they are liable to find themselves under siege by a bunch

#### SPECIAL TRAVEL ARRANGEMENTS

COMPUTER WEEKLY in association with COMMERCIAL TRADE TRAVEL LTD., hes arranged special trips to Compec Europe Exhibition in Brussels. Accommodation has been reserved at the SHERATON Hotel in Rogier Place, opposite the feir grounds.

There are two special arrangements, one for Exhibitors staying five nights, and one for Visitors, staying two nights. Flights are by scheduled services from London (Heathrow or Gatwick) Airports on flights of your choice subject to availability:

Price per Person (Sharing twin bedded room with facilities).

Sheraton Hotel £265.00 Tour A 5 night £175.00 Tour B 2 nights £20.00 Single room supplement (per night)

£59,00 per night Accommodation Only Twin with Bath Single with Bath £50.00 per night How to Book

Complete the booking form and post immediately to the tour operators, Commercial Trade Travel Ltd., Carlisle House, 8. Southampton Row, London WC1. Tel: 01-405 8666/5469; Telex: 21792/949, A deposit of £30 per person is required and cheques should be made payable to Commercial Trade Travel Ltd. A contirmatory invoice will be sent and the balance is payable on receipt of invoice. Tickets etc. will be despatched about 7-10 days. before departure

ercall frame fravel ( to Completors baled as the next common and to the state of the state of

The primary goal of the symposium is to Topics to be discussed will report on the state of the art and to foster the include: exchange of ideas among scientists, computer Distributed architecture professionals, engineers and managers on problems, new techniques and trends of requirements. "Systems Architecture." Like its predecessors Communications the symposium will be the foremost platform orid wide for presentations and discussions. At this symposium topics under discussion will be the significant developments in the important and rapidly expanding area of management Systems Architecture.

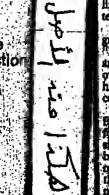
The Institute of Education, University of London

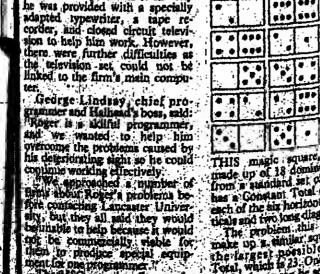
The line up of distinguished session chairmen, invited speakers and authors totals 76. They are well-known in their specialist fields and are of international repute: The 80 papers presented were selected from over 160 submissions to give a balanced and authoritative overview of the subject.

System specification and Man/machine interface Fault-tolerant systems. Tools and management information and system Software and system architecture Microprocessor and microprogramming" Language design Data base architecture Analysis and construction

of large systems

Data flow architecture For full details write to Christine Jones Conference Administrator, IPC Conferences Ltd., Surrey House Throwley Way, Sutton, Surrey SM1 4QQ England Tel. 01-643 8040, Ext. 4890





THIS magic square, which is made up of 18 dominors selected from a sandhard set of 28 pieces has a Gonstant Total of 18 short each of the six horizontals six verticals and two long diagonals. The problem this week is in make up a sixular square laring make up a sixular square laring the problem this work is not to the problem.

But where are the heliv tomes thorsed from the bowels of the Wold Health Authority and the Wisan Borough Council How can eatering district managements ignore the management in the country sets of country sets does no politician take up the Prints of Canada Line Case

ing such a comparison."

More VDU tears COMMON sense tells me that of Darlene Weiss is up before the Ontario Workers' Compensation Board. Although only 40 years old, what?

The one of Education of Darlene Weiss is up before the Ontario Workers' Compensation Board. Although only 40 years old, she has eye cataracts. Her union, the Ontario Public Service Entered of Darlene Weiss is up before the Ontario Workers' Compensation Board. Although only 40 years old, she has eye cataracts. Her union, the Ontario Public Service Entered of Darlene Weiss is up before the Ontario Workers' Compensation Board. Although only 40 years old, she has eye cataracts. Her union, the Ontario Public Service Entered of Darlene Weiss is up before the Ontario Workers' Compensation Board. Although only 40 years old, she has eye cataracts. disagrees and writes: "There may notice any real risk to peeting netic radiation from the VDU she onions, but if using a VDU was used for four hours a day between the thing approaching as unpleased for four hours a day between August 1978 and March 1980.

Her union sent her to a New York optician, Dr Milton M. Zamer than a critical part led

openions suppose group leader Brian Franklin, with the beard, and a evo-one manager Dennis King. In front of them is an IBM 4341 which was ustalled in December. It will be joined by a second 4341 in May.

act then a quarter of an hour a ret, a man whose studies have led on do VDUs a disservice by from VDUs causes cateracts. Weiss' union is surveying its VDU using members with a question prepared by Zaret. The intention is "to prepare a detailed procedu-ral guide for the use of VDTs". Incidentally the following telex arrived the day before news of the

Throughout the world (and this was issue of global consequence) there is more time devoted to peeling oblobs that operating VDUs that no mittake about it; that mean more tears, more cus finate more split nails and possibly a couple of amputations at the will every year. Canadian cataract reached this workers' compensation' in the claims catamete came from VDT use (page 24) should instead road for any inconvenience this causes - Technology News of

If the board persists in considering Ms Weiss as a workingin, she could suffer even greater incon-

IN a previous article, access path analysis was described as a method of documenting the function's use of the entity model. Functional models were drawn for each elementary function showing, the access path taken through the en-

tity model.
The first stage in translating the entity model into database design is to select, from the global entity model, the subset required for im-plementation. This is achieved by drawing a complete functional model for all the elementary functions which are being compu-

In Figure 1 such a functional model has been drawn using the huspital model as the example. It has been assumed that only the entity and relationship types shown are involved in the functions we are to implement.

The next stage is to msp the entity types to record types and to determine how relationship types are to be represented. This procedure was discussed in the article on

Having established the data items in each record type and hence the recurd types, the options

base. For example, with Total, op- and so forth. ment (record type) can he of many types. In Codasyl DBMSs,it is pos-sible for all file types.

the structure of the entity model.

types B and C in the nne variable entry file Y, as it is then impossible to implement the relationship between C and D. The structure of the entity

model has therefore to be considered before any decision can be made about which record types are

mapped to which file types.

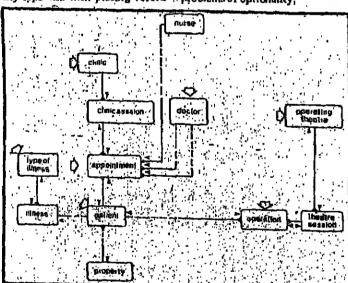
The resulting record types and links must then be mapped onto the logical database. It is not intended to go into the rules and attructuring limitations of every DRMS Instead some well known DBMS. Instead, some well-known and widely used DBMSs have been selected and a table (Figure 3) drawn up to show whether they can be used to map directly the structure represented by the funetional model

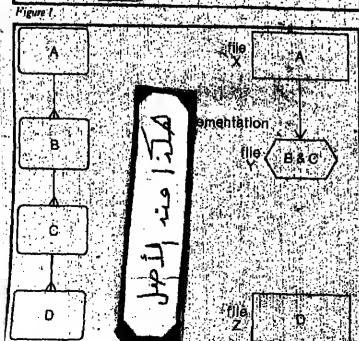
Since many DBMSs have been implemented using the Codasyl recommendations, for example, IDMS, DMS 1100, these have been grouped under the one heading "Codasyl" for convenience. (Several Codasyl committees were set up to recommend standards for DBMS development.)

lo Figure 4 the DBMSs are compared to see whether the accesses required of the resulting structures can be directly implemented. The conventions used in and more than one record type to drawing many DBMS logical structures (the notable exception The decision on how this is being Total); a square box repreachieved is dependent on the sents a record type (segment, etc), structuring limitations of the dats- a line with an arrowhead, a link,

There are usually several ways tiles only. In IMS a "child" seg- open to the datobase designer to avoid the structuring and access

limitations of the DBMS. Some of the principal ways are The decision on whether to group more than one record type into one file is also dependent on secondary index, he can duplicate It would be foolish, for instance, to try to implement the structure shown in Figure 2 using Total, by creating record types for each entry type and then placing record problems of optionality.





# Designing the logical structure of database

There is one further point which overcome using the facilitie should be made before the topic of offered by the DBMS (link file design is closed. Sometimes a records, secondary indexing, etc) DBMS is not available, or the cir- but the design of a damhase is cumstances are such that only part inore complex task than just placof the entity model can be implemented using a DBMS. It is then where the DBMS does not map the

necessary to use conventional files.
This can be done, but more emphasia must be placed on the direction of access and selection crie-ria. The techniques used to implement the models are much the same when mapping entities to records, but relationships have to be represented by using either coocateoated keya or explicit essential data on which to base his pointers when describing member decisions, and no database deto owner relationships.

This topic will not be discussed further in these articles; it is sufficient to know that mapping is pos-

The database management system often does not directly map
the structure of the functional The Data Analysis methodalogo model, or allow the accesses required. These restrictions can be Palmer,

Cogical models .	? Oirectly	Imploment	able with
	Codasyl	IMS	Tohul
direct access by key on owner record and member record	YES	NO	NO
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, A B	YES	YEA	YES
c intersection by key			·
direct access on owner record by non-key	ио .	NO	NO
l i	.		
4 A sarial senich al member recard level .	YEB	AE\$	YES
NB NB			
direct access on owner records	ACS	YĘS	YES
8			
6 Di-directional llow	YES	YES:	YE3
14			

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#### Section II - Part 3

of our series describing a system design methodology

by Rosemary Rock-Evans

ılu	by Rosemary Rock-Evans								
offered records, but the more co- inglink p	hy the secondandesign of applex tales to a secondary the secondary tales are secondary to a secondary the secondary tales are secondary to a secondary the secondary tales are secondary to a secondary tales are secondary to a secondary tales are s	e DBM ry index if a dam sk than secondar	acilities (S (link xing, etc) thase is a just plac- y indexes		Functional/dula madel	-	ectly map; IMS		
where the structure complexi specialis knowledge effective	e DBMS directly ity of the st with ge to de database	does no y. It is task, re high to sign and e. that I	the very quiring a echnical lune an has given designer.		A unic to minny	YES	YES	YES	
As we the analy database essential decisions signer carsign with	have see st who si designedate on date on n production	en, howe hould pre er with which to no data ce an effe ter a mo	ever, it is ravide the all the base his base de- ective de- del of the		2. A cyclic structure	YES	NO	NO .	
environmentals of herms of mented.  The Dawas dev	nent he i ow that the fund	a mapping model options to	ng, or deperates in be implemented along the desired along the des		3. B hierarchy	YES	YES	No	
Palmer,					(c)			.	
	POIRECTLY Codasyl	IMB IMB NO	Tohil		4. Stuffylde mandher lytin	YES .	YES	YES	
	YES	YEA	YES .		5. aptionally	YES	NO .	NO.	
	. ОО	NO .	NO		B A C Ivan owners	YES .	YES	YES	
	YÉB	YE#	YES		A tt G autilitie ineuris	YER	NO	YES	
	YES	YES	YES		8. A [1] G. Brintenchy with multiple owners	E3A.	NO	NO.	
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# Ex-Hallmark men from WP company

A NEW company has been formed to develop the capabilities of the word processor as a management tool. Called Microtex, the company is hended by Michael Talt

and Richard Jones.

The company will deal in AM jacquard equipment, to be marketed to institutions and corporations solely within the sphere of word processing, information storage and retrieval and electronic mail. According to the company, word processor related software

the company team worked for Hallmark Business Systems before it went into receivership. Tait handles the marketing side of the business, and Jones the technical

The company has bad a good start, according to Tair, with the first month's salea over hudget.

Mierntex is at Aldwych House,
Madeira Road, Weat Byfleet, Surpolication packages will offer rey. Telephone: (09323) 53151.

ponsible for technical

liaison. he was previously a tele-

communications engineer with

Dr Jose-Morie Griffiths has

Medical Group (Scotland). University Medical Building, Aberdeen. Details from R. B. Marsheli

Demonstration by members of

un 041-332 6822 ext 19,

APRIL 7



ATECHNICAL director has been appointed at Marconi Communica-tion Systems. John Craen has been involved with Marconi since he joined Ellion Brothers, subsequently to become Marconi Space and Defence Systems (MSDS), in 1967. Before that he was with EMI, working on various rader

He worked as project leader and became involved in satellite research and development at Marcoal Space and Defence, and in 1972 became divisional manager of tant at Kent-Barlow Information the military communications divi- Associates. She is currently sion of the company. In 1976 he working in the US with Kings Re-was promoted to generol manager of the Brown's Lane, Portsmouth unit of MSDS.

working in the US with Kings Re-search Inc on a series of special studies for the US Department of Energy.

#### DIARY

MARCH 31

Silvanus P. Thompson lecture. The Changing Sercen IBA. IEE. The College, Regent Circus, Swindons. 2,00 and 7.00. Tickets from D. Batchan, Square D Ltd., Cheyney Manor, Swindon SW2 2QG. Micros in education. BCS. BCS HQ. Lordon. 2.00. HQ, Loudon, 2.00.

Euronet Diane. UCS Chester and North Wates himneh. Crest Motel, Wrexham, 7.30. Job Control Languages

Working Group conference

Working Group conference

Micro to Mainframes — Talloring

and Standardisation. BCS JCL

Group. Institute of Education, 20

Bedford Way, London WC1. £20

members, £25 non-members, Applications and cheques to the BCS

Accounts Dept.

Computers in general practice Head Hotel, High Street, Roches-the Scottish experience. BCS ter. 7.30.

CONFERENCES

A SEMINAR of CAD/CAM

systems is to be held by the
National Engineering Laboratory
on April 1-2. It is aimed at technical staff using ar considering using
computers in mechanical engineering design and manufacturing
applications. The first day will be
devoted to a presentation of standalone systems, dealing with NC
graphics; surface description and
machining, geometric modelling

and planning and planni

and planning and estimating. Day ity of work, staff training, staff training, staff training sta progress to date, and to those con-sidering a project for the first time. Speakers have been drawn from the Computing Services Associa-tion consortium which produced the consortium which produced

BOW. Tel. (03552) 20222.

DP budget cuttoseks involve DP managers having to intert application deadlines with fewer staff. Calculations show that proprietary software generally costs about one similar systems in house. A series of seminars which will assess the summary with the text processing mount by larking the local by lastifung to compare the text processing mount of the text processing mount



Mike O'Shea and Peter Rand joins from Ampex as senior pro-grammer. O'Sbea, previously with Hamilton Rentala, joins as sales executive and Rand becomes res-

Bob Matthews has joined Data General as management information services manager. He was formerly data processing man-ager at Alfred Dunhill. Also joining the company is Bill Cadogao, who has been appointed systems engineering manager. He joins the company after 14 years with ICL, where be served most receotly as customer services manager

Tim Worley has joined Redifon Computers as products man-ager of the manufacturing division. He was formerly production control manager with Eurotherm.

Joseph O'Dooghue has been appointed senior consultant in the newly-formed Medical Systems Group of CACI Ireland. O'Donoghue was formerly with the expeti-mental Medicine Unit 81 University College, Galway.

The electronic uffice of the future, BCS East Angilan branch. Hastern Electricity Central Accounting Offices, Russel Road, Ipswich, 7.00. M Christine Pearson has joined Mainfranc or linked miuls? BCS Hampshire branch. Simpact Hutse, Shedfield, Sonthampton. Systems Resources as consultant.
She was formerly a management traince at Unilever Computer Services. Also joining as consultant is John Casey, previously an analyst programmer for Temp Computer Meeting. Gino Users Group. Computer Centre, Mathematics: Bullding, Bristol University.

Trevor Lewis has been appoloted manager of the software products division of Commercial Inventory Service. Also moving to this division is Paul the Medway Amateur Computer Invent Club. BCS Keot branch. King'a this Southernwood who is responsible for training and support.



Alan Sharma, Ronald Stolle, Torsten Sebmidt and Flon MEMOREX has appointed Dr. Mike O'Shea and Peter Rand have all taken appointments at Nokia, the UK busineas systema division of the Nokia Group of Fioland. Sharma has joined as senior customer engineer. He was formerly with Perkin Elmer. Stolle ioins from America and Flon MEMOREX has appointed Dr. Alfredo Màzza as vice-president of international operations support. He will be responsible for at RC Computer, the UK aubsidiary of A/S Regueceotralen of consumer products, customer engineer. He was formerly with Perkin Elmer. Stolle ioins from America and Flon MEMOREX has appointed Dr. Alfredo Màzza as vice-president of international operations support. He will be responsible for at RC Computer, the UK aubsidiary of A/S Regueceotralen of consumer products, customer engineer. He was formerly with Perkin Elmer. Stolle the company as business development manager. The appointments have been made in preparation for the last two years, 1) mars have been made in preparation for the last two years, 1) mars have been made in preparation for the last two years, 1) mars have been president of Monwelopment manager. The appointments have been made in preparation for the introduction of oew teffbre in Italy. His 25 years in the computer industry includes a 13year period with IBM in Europe and North America.



■ Briso Noian, Frank Feasome and Ian Ball have been appointed directors to the board of Perranti Computer Systems. All are general managers of operating divisions of Ferranti Computer Systems.

Roy Gibson, former directorgeneral of the European Space. Agency (ESA) has joined Logica as

Terry Davis has been appointed Northern regional support man-ager at Computer Automation. He, was formerly technical services manager at Fine Art Development

# **Director for BIS**

A DIRECTOR has been approinted at BIS Software. He is Melvin Haskins, who has also been made managing director of BIS Banking

In 1977 he was seconded to the BIS New York branch, and in the following year was appointed Mi-

ystems. das implementation manager in Londont. He became manager of 1974, working in a number of custom-hudi banking systems and 1979 and later that year was aptelecommunications projects, be-fore becoming a consultant for BIS Software.

#### Micom adds to the board

FOLLOWING Micom System's acquisition of Borer Electronics, the company has added three directors to the board. Ken Baynton and Peter Donn have heen promoted to technical director and finance director respectively. Russ Dopson, who recently joined the company from Scicon Computer Services, has been appointed sales director. These appointments double the board complement giving Micom-Burer four UK



Mike Lawrence has been appointed UK manoger, application software development at MSI Data International. He joins the company from BOC where he was coosultant to the BOC Datasolve management Sciences Group.

■ Penny Joyee has been appointed manager of financial services at TSE Computer Supplies.

Chris Pinch, formerly a sales executive with CPP, has joined Computer Associates in Maidenbead. He will be responsible for all product sales in the South West.

Archie Currie has been appointed marketing executive at Linlathen Computer Services. Ho joins the campany from Worcester Royal Porcelain, where he was

Nigel Simpson has been appointed product marketing manager for the UK and Scandinavia at Hitachi. Electronic Components. He was previously with Jermyn for



Sean Gollagher, formerly European husiness manager with Tektronix, has been appointed sales manager in Hamtek. Also joining the company is George Lavigne, preriously at the Duich defence research prigmisation

■ Colin Evans has been appointed sales manager at Amplicon. He was formerly sales engineer at Analog devices. Also joining Am-plicon is Reg Eyrea, who becomes inside sales engineer. He was previously in sales support at

 Dao Clay hos heen appointed South Eastern sales manager at Micro Five in Atlanta. He preriously worked as sales manager at Quantel and Minicomputer

Robin Carr and Andrew Beavis have been appointed sales execu-tives of CTL's business computer division. Carr was previously branch manager with Nixdorf to Manchester and won the com-pany's Top UK Salesman Award in 1977. Beovis joins from Honeywell where he was a husiness systems salesman.

Heory Green, who was UK sales manager of Wiggins Teape's fine papers division, has been appointed general oranager of Flovat. Heading up the company's new sales team is Trevor Bowles. He joins Hovat from Wiggins Teupe Paper's Bristol branch where he was field sales manager. Dovid Doorbar is area sales manager for London, East Anglia and the East Midlands. Yorkshire and England cricketer Geoff Cope is area sales macager for the North.

# Computing has a vital role to play in education today. Opportunities for students to learn skills vital to their futures are offered by the use and study of data processing systems. in schools ond colleges. Now there's a unique magazine that reports on the whole of the educational computing scene, called not surplishingly Educational Computing. it's required reading for tulors, students and suppliers alike. Flandware, software, coulses, kinglinges and applications, all are investigated, reviewed and reported upon. Keep in totals with all the new computing developments in education today, Subscribe now to Educational Computing. <u>cducational</u> Pisone arrer my indescription for lan leader of Educational Computing of EB-SO (Oversite E14). Infection of charges/P.O. or Sterrye my crieds care.



#### But Euribon will, of course.

You name the computer and we supply its consumable needs.

For juge Maintaine, Mind or Micro Computers or Word Processing systems. Europea state and processing systems. Europea state and processing systems. Europea to the expert of supplied of alignments products from hundreds of alignments products from Day Model of Day Wheel plants to plant of the process. Opinion of the process of the proce

cabinals - You name u, we successful the it's running sprogramme your computer to display the martie EURIBON has it time it's running short of supplies - there a no better service anywhere. Or, better still, don't was until you it's struggling bill give our Customer Services a run now for distalle of process and let us do the rest.



# A package to speed up floppy disc output

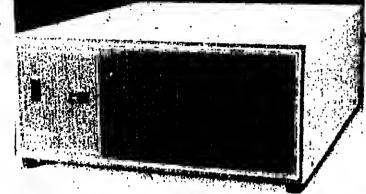
ment package said to speed upfloppy disc output by three to five times and boost storage efficiency by 30 per cent, is available for the Equinus Series 5000 and 8000

The Turbocharger package pro-vides read-after-write verification, automatic and dynamic sensing of

system to configure dynamically for the amount of RAM installed, and RAM errors are diagnosed automatically on start-up.

The Turbocharger speed advan-age is achieved by multi-level huf-fering of disc I/O, using least-re-cently-used (LRU) buffer

This should provide a multifold



Equinox's Turbocharger is designed for the 5000 and 8000 microsystems.

ComputerWeekly brings you

ing larger physical sector sizes. For exumple, an ordinary 8-inch single-sided, single-density can ac-commodate eight 512-byte sectors per track compared with the more common format of 26 128-byte sectors per track.

Additional capacity is accomplished by eliminating reserved "system macks" required by standard CP/M, the result being a 306 K-byte capacity on a single-sided single-density disc compared with 24 IK for standard CPM.

For double-sided and double-density recording, the Turbo charger permits more than 1.25MB on 8-inch discs and 400K on 5-inch dises.

The Turbocharger is optional on the Equioox Series 5000 and 8000 microsystems and costs £150 plus

Equinox Computer Systems Ltd (CW), Kleeman House, 16 Anning Street, New Ion Yard, Loodon EC2A 3HB. Tel: 01-729



# Graphics for all seasons

Tilli 6212 high performage colour graphics terminal is the latest addition to the Ramtek 600 family available from Terminal Display Systems of Blackburn.

This terminal is said to base a wide range of applications in

wide range of applications including business graphics, automatic control, management information systems and command countrilly and command countrilly and command countrilly and command countrilly are statements.

With a 640 x 512 resolution, e. 6212 should provide high deline tion display and users whee graphics have high vector count will need the optional hardware vector generator, designed to men

rigorous drawing requirement.

By writing vectors at 0.8 micro
seconds per pixel the general
should give a high level serial perormance cumparable with DMA parallel driven systems.
The serial R\$232 interface will

perate at speeds up to 19.1%

Terminal Display System (CW), Philips Road, Whitehir Estate, Blackburn BB1 5TH. Td. 0254 676921.

# Sophisticated filters for sensitive uses

signed to protect sensitive lectrunic equipment and systems from mains-burge interference produced by such phenomena as witching surges, circuit breakers and thyristor-controlled equip-

These multi-stage filters, invorporating un earth renirn choke to block interference entering over the earth lead, are screened in metal housings and effective over the 150kHz-300MHz frequency

Rated at three numperes, the PR64 is provided with one 13A speket furtlet while the PR 114 is rated in 6A with two paralleled untlets. A ministure automatic cir-cult breaker with luminous on/off switch should ensure both safety

and case of use.

The I'R 64 and 114 filters have high attenuation of 80 dll and appear suitable for a wide range of applications, ensuring a clear power supply to computers, in-struments and laboratory, office

and educational equipment.

They can also be used to suppress interference from sources

such as electric typewiters, as sufpressed test circuits such u thyristor circuits and prevent such interference from reaching th

1.yons Instruments (CW).

The FR 114.

Versatile tape prep

system launched

has marketed the versatile NC converter module and the 1000 integrated CNC tape pre- 300 paper tape readet/punch parallon system in the UK, em As it is capable of receiving and ISO codes and converting the ploying both EIA and ISO codes and converting and ISO codes and converting and ISO codes and converting the parallel, RS 232C and current loop used with machines using both devices.

mains supply.

Available from Schaffoer's [3] distributors Lyons Instrument, the current 1-9 prices (ex suis VAT additional) are £48 and its tespectively for the FR 64 and FR 114, with price reductions for 10

low the printer. The main casing is placed ov

the machine and located on the base tray. Slots are cut in the casing for power and signal leads ac

A small whisper quiet fan le fitted as standard, designed to maintain interoal temperature

# **Encoder for plastic cards**

# Privacy for

MERCK and Hellsoder of Pang-bourne, has launched an energyp-ton terminal for Telex users with full screen edit facilities.

Designated HI-TEX System 2800 the equipment provides a method of preparing private (encrypted). Telex tapes in privacy with the advantage that the equipment of the company ment can also produce screen

# Intelligent terminal has wide range of uses

AN INTELLIGENT terminal from Data General offers OEMs and end-users MicroNova compu-

Model 5100 is available from the Special Systems group and can be used as a stand-alone MicroNova system or cluster controller. It can also be used as a remote intelligent subsystem with downline loading, local disc or diskette storage.

It uses a MicroNova MP/100 backplane, permitting the use of MP/100 peripherals and interfaces, including diskertes, discs and communications options.

There are nine 5100 models, eparated into two basic 5100B and 5100M versions, the 5100B based on the MicroNova Board Computer (MBC) line with four expansion slots, while the 5100M is based on the MP/100 microcomputer with hree expansion slots.

Hardware and software are designed ioto an integrated package with the Dasher 6093 video display terminal used as a system console for the Micro Nova computer.

mented by RJE-80, HASP II and X.25 software. The 5100 display has a 12-ioch screen (80 columns by 24 lines) Small business systems based on the 5100B and 5100M can handle an impressive workload when as-sisted by options such as peripheral memory, disc, diskette, or mag tape, terminal printers and and features direct cursor posi-

tioning and screen sensing. Prices range from (£3,125 and delivery is 90-120 days after rec-Communications options include asynchronous and synchro-nous line interfaces, multiplexors, CRC generation and checking and 801C auto call ioterface. The com-

Data Georal (CW), Hounslow House, 724-734 London Road, Houoslow, Middlesex TW3 1PD. Tel: 01-572 7455.

#### **Hardware House launches**

TWO products have been added to Hardware House's range.

New to its word processing range is Quill 1. This combines sill the features of the Solitaire/WP word processor with the large eharacter, bar code and bar chart capabilities of the programmable rioting machine. Quill can be installed for stand-

alone labelling applications. The editing, storage and retrieval facili-ties, with draft printing of up to

The Solitaire business system also available, which uses a Basic language dialect known as Micro Business Basic.

A range of applications software packages are available to systems builders for use as seed software for their customers' own applica-

Hardware House (CW), Church Road, Burgess Hill, Sus-sex. Tel. (04446) 2519.

# Silencer for printer

silences from Power Equipment is designed to reduce the noise outout of the recently introduced Centronics 737 dot matrix printer. Up to 80% noise reduction is

PRODUCTS - 2

The Data 110 Interactive Logic Programming Pak.

aimed for the enclosure and the unit is designed to allow easy operator access to the machine, accommodating three-way letter-head, fanfold and roll paper hand-

ling facilities.
The aliencer consists basically of s compact, smartly finished metal casing with hinged transparent acrylic front and top section for

acrylic front and top security front in the security front and top secur

Installation may be accom plished within five minutes, and the bottom section of the enclo sure, a heavy gauge steel tray covered in dense foam, is placed be

Pak speeds FPLA programming

AN Interactive Logic Programming Pak for Data I/O's System 19
PROM and Logic Device Programmer, has been designed to speed the programming of Signetics FPLAs, based oo Signetics 28
Normally, the desired output levels are defined by producing fuse. This is usually done on the manufacturer's logic diagram.

The Ioteractive Logic Programming Pak contains software that does all the translation automatically. Equations are cotered by

proof and Logic Device Programmer, has been designed to speed the programming of Signetics FPLAs, based oo Signetics 28-plantlegrated Puse Logic (IPL).

In principle, bi-polar logic devices are programmed using the same fuse-link techniques applied to the programming of PROMs.

The process involves the selective logic device, it can be difficult to know which fuses to blow.

Normally, the desired output levels are defined by producing specified input combinations, then representing these functions in a State Table. Once the logic functions are defined, information must be translated into a form to which each bit represents a device 141661.

NATIONAL Business Systems of Canada has introduced the NBS Model 500 encoder, designed to provide automatic error-detection. The machino has a VDU and matrix printer built in as standard and a motor-driven read/write mechanism whose coostant speed mechanism whose coostant speed and precise registration are said to sure accurate entry and days

The Model 500 is a stand-slone, desk top machine designed to en-tode and read all three standard iso and read all three standard iso magnetic stripes on plastic credit and cash-dispensing cards, or on similar cards used for security of job-processing purposes.

It will simultaneously complete ZPH, E data from all three tracks on the 5- 53291.

Controls comprise a standar typewriter keyboard with addi-

tional control-keys, plus ten separate single-function keys and LED indicators show the

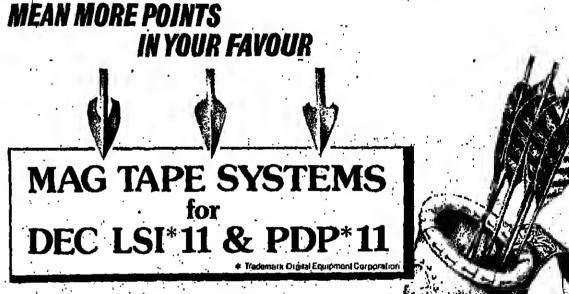
NBS Division of Lanyard Ltd (CW), 214 Station Road, Addles-tooe, Weybridge, Surrey KT15 ZPH, England. Tel: Weybridge

#### Software for Superbrain Telex users

THE Business Desk software package, developed and marketed by Paxtod Computers is available for amajer disc capacity mitrodecessions.

Parton claims the Business Dest implementation on a two drive quad density Superbrain to have a capacity in line with the requirements of the typical amali-

Merek and Hollander Ltd.



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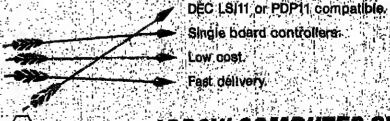
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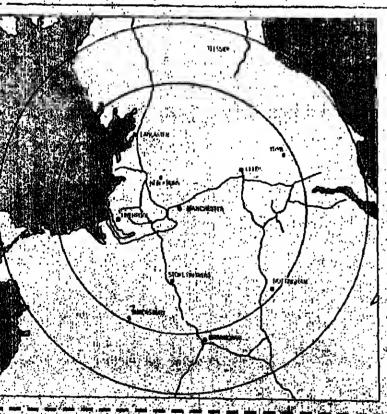
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minal which could display both

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on the same screen if required. As

Roman script is written from left

to right and Arabic from right

left, the software tu enable the

screen to follow the rules of

whichever script was in use was

Another customer wanted to

acceas an unline database via s

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extract the relevont data and load it

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The basic terminal is pretty powerful before customisation

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terminal eustermisation, and Alan Sinpson considers the contribution of plug compatible manufacturers.

Mike Keeling, head of Cambridge Coosultanta printing systems group, and its senior engineer, Gra-hum Martin, review ink jet printing, one of the latest developments in printing technulagy.

Their there have been many cases where customers have laid specialised security requirements. All these examples relate to upplications where the terminal is

expected to do a lot of work, so the pasic product is pretty powerful hefore customisation starts. Based on the Texas Instruments 16-bit 9900 micro, it provides such standard facilities us the ability to store multiple character sets tthere is provision for up to 900 different splayable clinracters), the ability to design the user's own special characters, and a multiple-split

screen capobility This means that the screen ond/ or memory can be treuted as up to eight imhividually operable areas, permitting for example an interrupt to be hamilled in one part of the screen while work being processed is maintained intact in

Sample applications are in message sivitching, where an incoming message can be displayed while elsewhere on the screen another is being edited, or in text processing, where new text can be created in

As a by-product, there is the advantage of putting the computer power where the action is.

one part of the screen, either by copying or by new composition, while the original text is retained un display in a different part.

Another standard facility is the provision ul two independent data parts, one for connection to the mst mainlrame and the other which is usually used for attaching a printer, but can be adupted for almust any other peripheral, such as a har-code reader, with milnor hanges in the suftware.

The inclusion of these facilities

in the basic terminal used for cusomisation cuntracts means that the customisation work itself is minimised and the bill is therefore lower, though the price of the ter-minal is considerably more than that of a basic VDU.

Another faculty that users find difficult to obtain is emulation of non-IBM protocols. Ooc request to DDS in a custom-built Burroughs TD830 emulatur has turned into a standard product. Bruno Testa says that the Delta 2830 differs from other similar products in being totally compati-ble and not merely a line protocol-

Burrough's' problems in delivering its own reminals have made the 2830 a best-seller for and a turnover which induces DDS. The company has taken the hint and is shurtly to introduce a similar product designed to emu-

amiliar product designed to emu-late Upivac terminals.

When should a systems designer think about using custom-built terminais? In some cases, such as a requirement for unusual peri-pherals or software emulators, the decision makes Itself. In others, illist a question of balancing costs. here against costs there, and then: t is important to assess accurately

what the real costs are.
A major area of savings is in line and transmission costs and the cost and transmission cours and the cost of (ying tip the main fame, schieved by transferring work into the transminal Incorporating powerful valuation routines not only reduces mainframe base but also casones that data entry arrors are transminated and corrected at source.

As a by-product there is the traditional distributed processing advantage of putting the componer. power where the action is. This not so easy to quantify but should result in greater local automing and increased staff morale.

In many cases, some or all of these benefits can be obtained by using off-the-shelf intelligent minals. In others, the user can i termatively rely on the power of the linst mainframe or on downlin loading of software. But there are still many apply.

tions where the optimum system comment be constructed from the hardware and software compo ments offered by the mainfra manufocturer and the independent suppliers. In these cases custom sation can be more economic than cither of the alternatives, compomising with a less than oping solution or designing your on cyuipment.

Parchasers of custom-built ter minuls tend to be well organish companies with a clear idea what they went and what it only to cost. Delta Data System' is includes some very large organis-tions such as the BBC, Brish Rail, Itil, Midland Bank and its Post Office. Other customers in clude the Banque Nationale & Paris, Oxford University Pres Press Computer Systems and he

Rubert Hotne Group. In satisfy these customers DDS is organised in a rather to usual way for n hardware woder. in that it is very much s senie company railer than a proter company - indeed, the skillspartment was the last to be formed and is still very small. The legen part of the firm is the customs service, department, consisting a engineers, customer support su

und quality control lechnicians: This privides a context for mar aging director Ken Rumsey's 60 servation, "It is not the exist thing to find customers for the services, but once we've got then we rend to keen them." Evident we tend to keep them." for this intier claim is that the conpany's first UK customer, Pres amputer Systems, is still a ar rent customer five product generations later. The very first female the company sold is still in open

In commercial terms, the DDS UK subsidiary is much more typical. Statting with a handful people, it has built up gradually it a present complement of \$5 mil

Purchasers tend to be companies with a clear idea. of what they want.

lion in the current financial year. has made a profit in every para

operation..... The company has now reached The company has now record stage where it is assuming a liter tity of its own, independent of policies of its American record Assembly of the Delta trimulation imported kin has his tampa at the company's Welwys at the tom in the form the

at the company's welver at the company's welver he premises, and in the future he company will start producing it own togic cards.

This move is tustified paint is sales returned, but parily because the company has identified it will be company has identified in the company market requirement lighterent from those of its American bareot. The UK company wants in continue its emplished the useformisation service while the US company is moving the US company is moving the useful a policy of higher many wards a policy of higher many calling and the company is moving the company is moving the company of higher many wards a policy of higher many calling and callin

Versatile colour printing using ink jet techniques

oway the voltage on the electrode

can be changed au that a different

charge is retained by that drop. Hence, provided that the charging

The now charged stream of

in a direction perpendicular to the direction of drop deflection. Un-

charged drops are captured by a guiter and the ink may be reused.

Any deaired image can therefore be printed by placing appropriate

charges on successive drops.

Printing over a strip typically 4mm

wide can be achieved using one

nozzle. By banking nozzles so that the least deflected drop from one

nozzle ia contiguous with the most

deflected drop from the adjacent

nuzzle it is possible to print, for

example, a page of graphics.
With such n fast-moving tech-

nology it is dongerous to predict

limits but the maximum resolution

in the fureseeable future is unlikely

m exceed 16-20 points/mm. A

number of printers are currently

available employing this techni-

GEC) prinduces Video single

nuzzle alphnnumeric jet printera,

These printers hove o maximum

capability of 1,275 characters/ac-

cond of continuously variable data and employ a resolution of 30-70

points/inch.
The Intention of these printers is

overprinting (addresses, labels, rax details, etc), magazine

addressing and product coding (beer canning lines, etc).

Domino Printing Sciences of

Cambridge markets a single jet al-

phanumeric printer which was developed for it by Cambridge Consultants. This printer cao produce continuously variable alphanumerics at more than 1,500 characters/second/with a resolution of 25.75

econd/with a resolution of 25-75

One interesting feature of this machine is that it is microprocessor controlled, which enables it to

points/inch.

B. Dick (now owned by

tween 50 and 120 kHz.

by Mike Keeling and Groham Surfoce.
Martin At the

INK jet printing is the general name for a number of printing techniques all of which rely on the ability to form and manipulate small drops of ink which have diameters in the range 20 to 200 microns. These drops are directed or guided to appropriate points on the printing surface so that, when viewed together, they form the de-

Because ink jet printers are able to print, continuously, variable in-formation at high speed, either alphanumerie or graphie, they are particularly suitable for use with computera. Applicon has recently lauoched a three-colour drum plotter with considerable software support. This prints a 22×34 inch sheet in seven minutes with a resolution of 125 points/inch.

Oo the other hand, the computer can sometimes be seen as the peripheral of the ink jet printer when, for example, printing indi-vidually tailored informatiun onto

It is common for ink jet printers to incorporate microprocessors which carry out the housekeeping operations necessary to keep the prioter working efficiently and to manipulate data to present it in n form which the printer can use.

Apart from the ability to print varisble data, there are a number of other characteristics and henefits of ink jet printers. The printing is non-contact - unly the ink drops touch the printed surface, and this allows printing on delicate surfaces and mewing awk-

Coloured links, when cumhined with multi-jet arrays, will provide high-speed colour printing of, fur example, fahrles and posters and will provide the facility for short ruis and trial prints which are uneconomical rules. economical when using convenional printing techniques.

Printing speed depends on the type of ink jet printer and the print quality required. I'm example, medium quality alphanumerics us-ing a single ink jet can be printed at 31/2 metres per second and raphics using an array of jets of

Although, at the moment, ink peed with presses presses reproducing

Sometimes the computer can be seen as the peripheral of the ink jet printer.

lixed information (e.g. in newspaper and book printing) it can be one of the fastest methods for printing versable data and this, combined with the ability to print on plain paper in colour, is the reason why many hig negrees. ombined with the ability to print in the specific products are printing. The market areas are significantly reduces.

The Siloneia Quietype desk-top similar to those of the A. B. Dick in main areas in which this printer uses seven prioter and lottery type applications.

The Siloneia Quietype desk-top serial character printer uses seven prioter and lottery type applications.

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The Siloneia Quietype desk-top serial character prioter and lottery type applications the speed companies in this field:

Continuous fet. Ink jet printers it ions are also being pursued, firms overprinting and credit card in 180 or 210 c/sec. Peatures produces the 6640 ink jet billing.

IBM produces the 6640 ink jet billing. which have varying diameters (see fifetiz techniques) or a large disturbance is introduced to the turbines and discontinuous and the series of the series of the parent company of Cambridge districtive able of printing at 92 characteristic out of 1/18 publicly) with a condition of 1/18 publicly) with a second firing at 92 characteristic out of 1/18 publicly).

There is also the recently formed details, call 0372-6704 for write to:

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Street of the parent company of Cambridge distances in th tion is very advanced and it is cap-

stepped voltage. Because the ink is conductive, the drop forming at has carried our research and debetween the jet and the printing company, the drop forming at has carried our research and debetween the jet and the printing company. the end of the jet will have a charge induced un it which will be retained when it breaks away from of this technique to wide web the jet.

Before the next drop breaks

lis initial work was for ICI developing an eight-colour wide width fabric printer which would ensble instantaneous pottern changes to be made "on press".

signal is kept in synchronisation Apart from the printers de-veloped for Domino Printing with the drop formation each drop can be given a ualque charge. Typical rates of drop formation are Sciences, CCL also manufactured a number of multijet graplucs intera, hoving a specification similar to that given above, for Moore Business Forma for use as drops passes between a pair of deflector plates (field atrength business forms graphics overprinttypically 1500 V/mm) where the ers; its eurrent work is aimed at drops are deflected by an amount wide web printers with a resoluwhich depends on the charge. tion of 8 points/mm. These drops then impinge on the printing surface which is moving

Other products employing this

The use of ink jet for batch and date coding is likely to conlinue to increase.

method are monufactured by Sharp (jet print single-jet standasecond) and REI (Trace aystem for clectronic document sorting). Multinozzie jet undefleeted to

print. In this type of printer liquid is forced through a number of nozzles and is ultrasonically broken up into dropleta by vibrating the nazzle plote. At the point where the breok-up occurs the jet ia surrounded by a charge lectrode and drops are charged in s similar manner to the Sweet

The main difference is that all unprinted drops are deflected on to the deflector plates, and drops required for priating are un-charged and allowed to pass straight ahead on to the printing

The only products using this method are the Dijit printers produced by Mead Digital Systems of

to pruvide visually acceptable rather than high quality print. There are a large number of them world-wide, and the major applications are in business forms Dilt systems are currently available only in the United States and are generally available by leasing (although they cao be purchased). available but a typical specification

Resolution 4.8 poiats/mm Number of jets 960 : Printing width 200mm

Printing widths of 5.12 and 10.66 inches are also available but sor controlled, which enables it to the maximum printing speed is handle up to six printers from the only schieved if the wide range of same electronics and perform se-standard fourts is used. For full

several ink jet printing techniques.
The licensing rights of these are invested in Arthur D. Little Ipc, the parent company of Cambridge

At the point where the ink jet is furced to hteok up into drops is an electrode to which is applied a Limited, CCL, although not makes the interpretation of the point where the ink jet is ufage.

Cambridge Consultants form a cone-shaped sproy with a semi-angle which depends un the between the jet and the printing surface with a small hole in it such Therefore, the density of the spray which hits the paper can be controlled by varying the chorging signal and hence the cone sem

> In this way an approximation to a continuously variable grey scale can be achieved with an ink jet.

Another idea from Lund, which is not restricted to use with very sniall nozzles, ia known as the ound jet. With this a liquid another liquid. As the jet cmerges through the surface it pieks up a sheath of the second liquid (see

The advantage of this is that printing can be carried out with liquids which would not normally pass through the amall primary jet for printing with pigmented inks and other dispersions and suspen-

This technique is still under de-velopment and there are no compound jet printers on the market

Impulse jets. Impulse jeta, com monly called "drop on demand", are the cheapeat and slowest type to the head at a very low pressure siated by the meniscus surface ten-

voltage pulse is applied to th piezo erystal and the resulting deflection ejects a drop of ink on to the substrate which is in close proximity to the nozzle.

In printers of this type a number (typically seven or 12) of indi-vidual chambers are firmed into a single assembly to form the height of the characters, and either the paper moves beneath the print head or more usually, the head is mounted on a corriage and Iraverses in a similar manner to

In ink jet terms, printers of this type are fairly slow compared with an equal quality continuous jet system but they do have two main advantages which makes them suitable for an office environment.

they are silent, and cheap. The formulation of ink for this type of printer is difficult, as it must meet the conflicting require-ment of an ink which does not dry and hence clog the lotermittently used acceles, but at the same time must dry on the substrate. For this reason, most systems are currently used only to print on paper sur-faces. The main market for these

Siemens of West Germany pro-

duces the 17780 setial printer which has a 12x9 matrix and cao run at up to 170 e/sec. An interesting development of this machine is that it is now being offered as a factainfile printer caps ble of



The use of ink jet for batch and date coding is likely to continue to increase, and except for the very fast lines (which can be serviced by continuous jet printers) will be do-

likeal application where it is posaible to preprint and overprint the forms in a single pass straight from the digital data.

office printers may well not be ink.

jet owing to the complexity of the technique, and laser techniques are likely to become cheaper quicker. The use uf ink jet for printing of fabrics, floor coverings and wallpapers is likely to be a reality within the next five years.

Ink jet is becoming attractive in the fascimite and electronic mail fields, the main advantages here being its speed and multicolour

Plotters are an area where ink jet is ideal. The Applicon plotter is a

# IBM 4300 users

Beat your backup bottleneck with the STC 4500 Tape system To backup/restore an IBM 3370 (571mb) disc.

IBM 3410/11; 19 reels -271 minutes IBM 8809 24 reels -251 minutes STC 4500 : 4 reels - 32 minutes

#### PERIPHERALS - 3

THAT LONG-HELD convention that your mainframe is only as good as your peripherals has taken something of a setback in recent

suggest that peripherals are only as good as the mainframe they sisted the small independents. Any

support.
No longer is it atandard practice for the installation to operate a one-stop shopping policy where the user traditionally orders mainframe and matching peripherals

The arrival on the peripheral scene of highly aggressive and highly competent plug-compatible manufacturers has added to the equipment selection responsibilities of DP management, who now bave to spend as much time on

▶ PCM development has centred directly on the IBM marketplace.

tant decision. Unless the chosen CPU can support the competitive products of the independents, the installation will be locked into the one-source supplier - the main-

The PCM industry is by no means limited to the heavyweight end of computing as the alternative markeiplace at the micro end is becoming increasingly competi-

Indopendents are offering matched printers, screens and even add-on memories. Computing life, at least for the purchaser, is not getting any easier but it should be getting cheaper. It is uncertain where the inde-

pendent movement is taking the industry. PCM companies have proved their aggressive determination to lay siege to their chosen marketplace slot and can be expected to conquer new technologi-

It has become clear that the Independents will not be content to rest on their peripheral laurels and at least one major company has announced the intention of developing and marketing its own range of IBM-compatible majo-

It will be interesting to see how. soon the company has to face competition from other independent peripheral suppliers.

peripheral suppliers.

Before the current PCM marketplace is discussed, a review of the history and development of the independents will be useful.

Such a review will, however, he relatively brief as the companies involved have reached their present connected in a regressibility.

sent eminence in a remarkably short space of time. PCM de-

velopment has centred directly on the IBM marketplace.
Groups of talented IBM engineers saw possibilities in specific product areas and set up independent companies to exploit the companies the companies the companies the companies the companies

portunities.
By concentrating on selected ac-

their ability to produce cost, this hesitant attitude is not only effective alternative products.

In the invigorating climate of the Western US, the small companies fluurished abd soon found panies fluurished abd soon found panies competing effectively act only with IBM but with each other.

There was certainly no magic technological formula which as on its toes.

Single-supplier market is something of a setback in recent times.

In fact, the DP pendulum has now suring into reverse with the result that it is now feasible to suggest that peripherals are only as

> magic involved was their ability to develop, often in that proverbial Californian garage, a product equal to those produced in a lavishly-equipped mainframe

The PCM movement was founded on the computer revolu-tion - the revolutions being those of mag tape drive, line printer barrels and at a later stage, magnetic

Rehind the development was the bave to spend as much time on recognised nesd for better, more evaluating alternative offerings as on those of the mainframe unethods of storing dara. The ability in hold and manipulate consid-Even so, the basic mainframe erable amounts of data was the one out of the academic world into that

> punch card and paper tape and the acceasion of magnetic tape systems. Even now, mag tape remains the most cost effective storage medium, density packing having increased from a modest 200 bits per inch to 6,250 bpi.

By concentrating on data storage devices; the independents managed to capture the major share of the mag tape system market.

Before long, the PCMs turned their technological resources towards the next level of data storage, that of magnetic diac. Mag tage of having to be accessed se-

Data must be londed in batches and the whole exercise is fairly time-consuming. With the de-mand for real time processing sounding loud and clear, mag disc was the obvious answer, pre-senting the user with the ability to access directly any required data record in double density quick

Introduced in 1956, disc tech-nology has shown an incredible advance, especially following the introduction of the IBM multipro-

Demand surged for higher density, higher access speeds and in-creased capacity disc systems. These requirments are supplied by the PCMs, who added the bonus of

Unfortunately, the PCM alter-native marketplace is limited al-though the ilmitation factor does not embrace IBM users and it is possible to buy alternative CPUs.
Amighi and Magnuson offer a highly competitive line in mainitaines while alternative software is provided by such IBM compatible.

It must be increasingly difficult for manufacturers to effectively across product board.

By concentrating on selected activings such as magnetic tape atomorphisms of line printers, high technology proflucts capable of and fall products were tweelined. In the heady days of the late '60s and early '70s, venture tapital was not hard to find as is the case now in respect to funding Apple, Acorn or Per entirprises. or size of market. It is more the in respect to funding Apple, Acorn or Per enterprises.

Possibly to the elemal chaggin of frame manufacturers who appear the small scale operators; even though they were demonstrating to PCM competition.

To many of the non-IBM main frame manufacturers who appear to activities of PCM competition.

To many industry observers, their ability to produce cost, this heatant stitude is not only effective alternative products.

frame manufacturers to compete effectively across the computer product board, especially in the face of such rapid technological innovation sa RAM and ROM

That the laggards in the main-frame industry are finding it hard going to keep technological pace is becoming apparent as more and impanies are letting in the PCM industry through their back

The back doors in question are called OEM but the products are marketed in company colours to otherwise - which could impede avoid confusing the possible user. But for users without colour prejudice, not being able to choose

or willing to venture into the PCM marketplace. Many are only too pleased to stsy with IBM and run an all-blue operation, as the independents put it.

and select their own peripheral

having to cope with hordes of rival engineering teams descending on the installation is rather daunting. Problems of demarcation and

storage facilities for spares coupled with long-held resetvations on product and service reliability and depeodability often take precedence over auch factors as cost savings and improved performance.

bility of producing the required goods within tight time schedules. that objective and bring out the writh of senior company manage-ment is a matter to be avoided

A further suspected area of wrath is that of the mainframe supplier, who can hardly be expected to view with total countimity the prospect of the installation being filled with rival boxes and

tution nut noted for risk taking or pioncering new computer techniquies and techniclogies – haa thrown banking caution to the wind and ordered PCM equip-

The independents have been working for some time to achieve

The thought of having to cope with hordes of rival engineers is rather daunting.

industrial credibility - despite the undoubted advantages of considerable cost savings, substantially shorter delivery dates and ad-

The PCM target is the DPM, who sull seeks a quiet and tradi-tional installation life in order tu

as in peripherals and share by cuncern of their mainframe of leagues able to get the show but on the road in as short s time s

In these cost and budge

It can be assumed that similar rates of progress will be attained during the next ten years.

is ears in bubble memory tednology remains to be seen,

concentrate oa such intracubic matters as software application amendments and persanel

The thought of having to adjudicate between mainframe and peripheral engineers or sales teams access likely to intrude on these activities although in practice, of course, such fears are groundless.

Most PCM engineers. Most PCM engineers, having graduated with IBM, are probably as skilled in maiaframe diagnor

The reputations of the indepen ment, could be the ultimate dent suppliers stand or collapse of the levels of sales and engineering support as well as the performance acceptance accolade for the PCM

> strained times, few installations can afford to ignore the presented the PCMs. The Independents claim to have reduced the cost of processing by factor of ten in the past decide and

> Whether this means that the nstallation can expect to be no to

> There is oo doubt that the part computers play in business and government owes much to the declining costs of peripherals.



High and dry, low and waterlogged respectively for these competitors Computastars' gruelling steeplechase event.

\*Pad for fast and simple entry of data.

Visually, an 80 column screen provides crisp, dear information every time. And for those who like to

have everything safely in black and white, there's a fast, quiet printer to provide clearly-typed

sheets of invoices. statements, file copies

The PC 3201 unlike many inputitori is a complete ausiness computer system.

anything you require.

Crawley Sports Centre steps into the breach to solve Southern area heat 'overflow' problem, and in Holland . . . Hengelo wins battle to stage Euro finals of the DP Olympics

A GLITTERING prize awaits the most successful domesuc teams from the 1981 Computastars sod Computating competitions, an in-centive provided by the announce-ment of veoue for this year's grand

Buropean final.

"We have decided to stage the final at Hengelo in Holland on September 5", competition organiser Gordon Cairns told Compuniser Gordon Cairns and Compunism of the compunity of the computation of ter Weekly earlier this week.

"The running events will take place oo Hengelo's tartan track and there is plenty of covered "This is in contrast to the prin-

cipal Dutch athletics meeting of the current season which will be staged at a venue without covered commodation and it highlights the growing international importance of Computasters.
"There will be not food, good

changing fscilities and we are ac-gotiating for bar facilities to help keep spectators in good heart throughout what will prove an sbsorbing day's competition.

will be housed in Amsterdam. some 90 miles away from Hengelo, or closer to the competitive centre. "We are seeking the views of UK teams and will be in a position to announce our final decision within a matter of weeks at most.

"Henglo won against strong competition from the Dutch Olympic Stadium, Nijmegen and Pappeodao - the latter often used

"Hengelo gained our vote be-cause of its superior facilities and the fact that the Olympic Stadium is due to stage two major soccer events - ooe involving the Dutch World Cup qualifying group match and the other s League champions' competition shortly before and after our European

All of this lies some months ahead. More pertinently, Cairns is concerned to ensure the success of the UK hears and final which will provide our entrants to the Heng-

As Cairns explained in a previous issue, over 120 UK teams are ready to compete in Computas-tars and a dozen tug-of-war sidea ready to pull out their collective arms in the fledgling Computatug

"We have solved the problem of our 'overflow' Southern entry for Computestara by securing a defi-nite booking for the Crawley Sports Centre on May 25", he explained.

heats now reads: Midlands in Bir-miogham on April 25; Southern events at Barnet on May 16 and Crawley respectively; and the Northern equivalent at Cleckhea-

ton on May 31.
"Add to this list commitment to the UK final at the New Alexandra Stadium in Bir mingham on July 26 and this gives an indication of our tight schedule which opens next month.

"While all these events are in progress, our Dutch colleagues will be staging their own three heats and astional final shadowing our progress towards Hengelo.

"It is also worth noting that successful teams from last year's heats will be acting as judges during this year's regional competi-

"This means that Data Logic (men) and Rowntree Mackintosh (ladies) will provide the judges at Cleckhearon, with Mettoy (men) and Midland Household Stores (ladies) providing a similar service at Birmingham on April 25."

# Venues and teams

BIRMINGHAM

Group 11 BL Systems Ltd. (Reddich),
Safe Computing Ltd. (Leicester), Superniare
(Kalamazoo Ltd.) (Birmingham), Vikings
(Sandvik Ltd.) (Birmingham), Systems Resources Ltd. (Coveniry)

Group II: Midland Household Stores Ltd. (Nottingham), Sketchley Skylarks (Sketchley Ltd.) (Hinckley), Compact 3000 Systems Ltd. (Sedgley), Aletal Box Ltd. (Worceater), Johy Ganis (LBM UK Ltd.) (Nottingham).

(Wottingham),
Group III: Scicon Computer Services Ltd.
(Milton Keynes), Management Computer
Systems Ltd. (Manchester), Colworth
Crushers (Unilever Ltd.) (Shambrookt,
Open University (Milton 'Reynes), Rank
Outsiders (Rank Kerox Ltd.) (Wafnrd),
Mission Impossible (Cheltenham Computer
Bureau Ltd.) (Cheltenham).
Group IV Laddost Thorn EMI Ltd. (Telford), Metal Box Ltd. (Worcester), BL
Systems Ltd. (Redditch), Safe Computing
Ltd. (Lecester), Kalemazoo Ltd. (Briningham), Scicon Computer Services Ltd. (Milton Koynes).

Group ti Thora EMI (Hayes), P & O Computer Services Ltd. (Wallord), London Uplied Computing Systems Ltd. (London Uplied Computing Systems Ltd. (Borchamwood), Martin The Newsagenis Ltd. (Breathwood), Group II: Gordon & Gorch Computer (Iroup Ltd. (Steines), BOC Datasolve Ltd. (Sunburyton-Thames), Microscope Ltd. (Maidenhead), Lingcott Business Systems Ltd. (Breatwood), Data 100

Systems Ltd. (Herpenden).

Group III. Provident Mutual Life Assurance Assoc. (Hitchin), Armstrong Excuse (Armstrong World Wide Industries Ltd.) (Uxbridge), The Whards (Arthur Andersen) (London WC2), Centrefile Ltd. (London III), Logica Ltd. (London W1).

HI), Logica Ltd. (London WI).
Group IV. Longuiter Machinery Co.
(Henial Hempsiesid), Rank Ketox Ltd.
(Watford), Hapress Surprise | Tymshate UK.
(Tymcom Ltd.)) (London WC2), Digital
Equipment Co. Ltd. (Westwyn).
Oroup Vi Chelsea College (London SW6),
The Bassana Bunch (Carotridge) Computer
Services Ltd.) Canonfolge), Supercollus (Sequirior Ltd.) (London SW6), The Kingsizers (Winpey Group Services Ltd.) (London
W6), Hogg Robinson Services Ltd.) (Lefectter).

#### CRAWLEY

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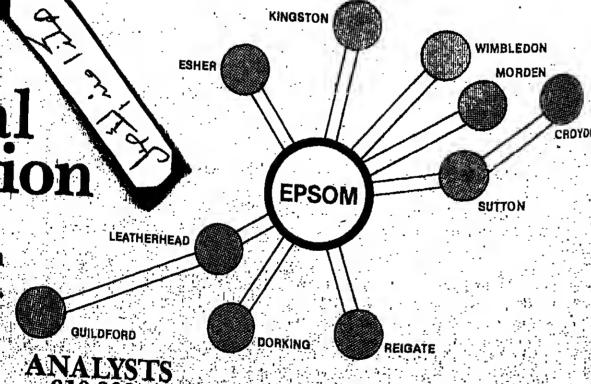
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COMPUTER CONSUMER ADVICE

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Raf: L/13/A

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14

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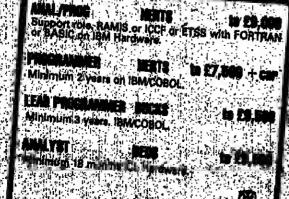
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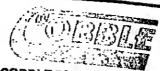
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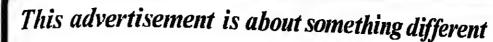
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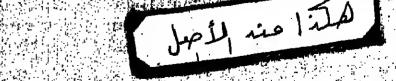
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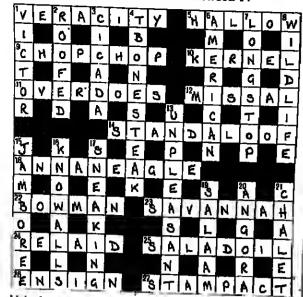
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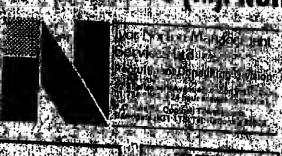
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OURING the last few weeks My resson for telling this have been writing about professional credibility. story sgainst myself is to highlight the importance of What I want to discuss pre-call analysis and now is not rhe destruction, but the winning of credibil-ity for the salesman, his

Personal organization: Do my serions and appear-ance give the impression of company and his product, and this by and large comes from how well organised and informed the salesman nised and reliable? This question usually leads to many others, such as:

To s great degree, this is e function of fluency in one's Has the appointment been confirmed? own product, the client's Have I sgreed an approxi-

needs and the related sales benefits. This is unlikely to time for the meeting? Is this company actually on my sales territory? preparation within four

areas of consideration: personal organisation, sales obtained the best way to travel there and how long travel there and how long jectives, client knowledge and product knowledge. Have all the travel er-

Way back in the Sixties when I was a trainee Is my car clean and free salesman with IBM, I was from problems with suffiinvolved in a role-playing exercise in which I was the cient luel for the journey? What is my plan for the salesman making a call on a atructure of the call?

prospective buyer for n com- How will I open the inputerised sccouoting system. I had known for s

couple of days that I was to
be involved, but for a
number of reasons I didn't

get around to much prethe basic sales literature? • Will I need any special sales aids? However, armed with all

the strogance of epplied ignorance and the confidence of knowing I was fairly what objections are quick on my feet, I launched likely to be mised and what will be the logical myself into the call. The buyer, aliss the selestrainer, told me about lus • What unexpected events problems, putting particular could possibly occur?

cmphasis on his interest in Do I need any assistance

sales invoicing. Quick as a from my sales manager?

flash I was in there with a Does my appearance give from my sales manager? barrage of information on

sion? Sales Objectives. Every the power of our system and mentation could be pro-duced. I really had the bit for taking place other than the obvious intention of selling something. The pre-It was about that time that my peripheral vision de-tected considerable hilarity the same. What is the reason for this meeting and what objectives do I intend to achieve? mong the audience. You

see, I was the only one who objectives do I intend to had not been given details of achieve? the actual situation that the This will certainly lead to sales-call was intended to a number of other questions reveal. It turned out that the imaginary company manu-vidual situation in terms of imaginary company manu-factured battleships at the the problems and opporturate of three per year and despatched the same annual number of involces to the nities that exist and the stage that negotiations have

appropriate government de-partment. I had made On the other hand, the deliberations could be of a more general nature: Is the what will be my strategy for rectifying the situation?

Alan Williams

#### COURSES I

myself look quite silly, sim-ply because I had failed to

prepare the call and ask the right questions. I had des-troyed my personal credibil-ity by being uninformed.

between my teeth.

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WR2 6AJ The course was place from July particular takes place from July purposes in Little and the companied by a registrative fee of £5. hands on course should be useful to those with little or no experience of computers and a basis introduction to the structure and operation of interconstruction in Basic, Tultion fee is £120, although applicants from schools and £01 reaches will be eligible for a subsidy of 60%. Residence will cost an extra £41. Further fationnation from the Director of Summer School; Warrester College of Higher Education; Hen-